CAN THE VISUAL ARTS BENEFIT HEALTH AND HEALING?

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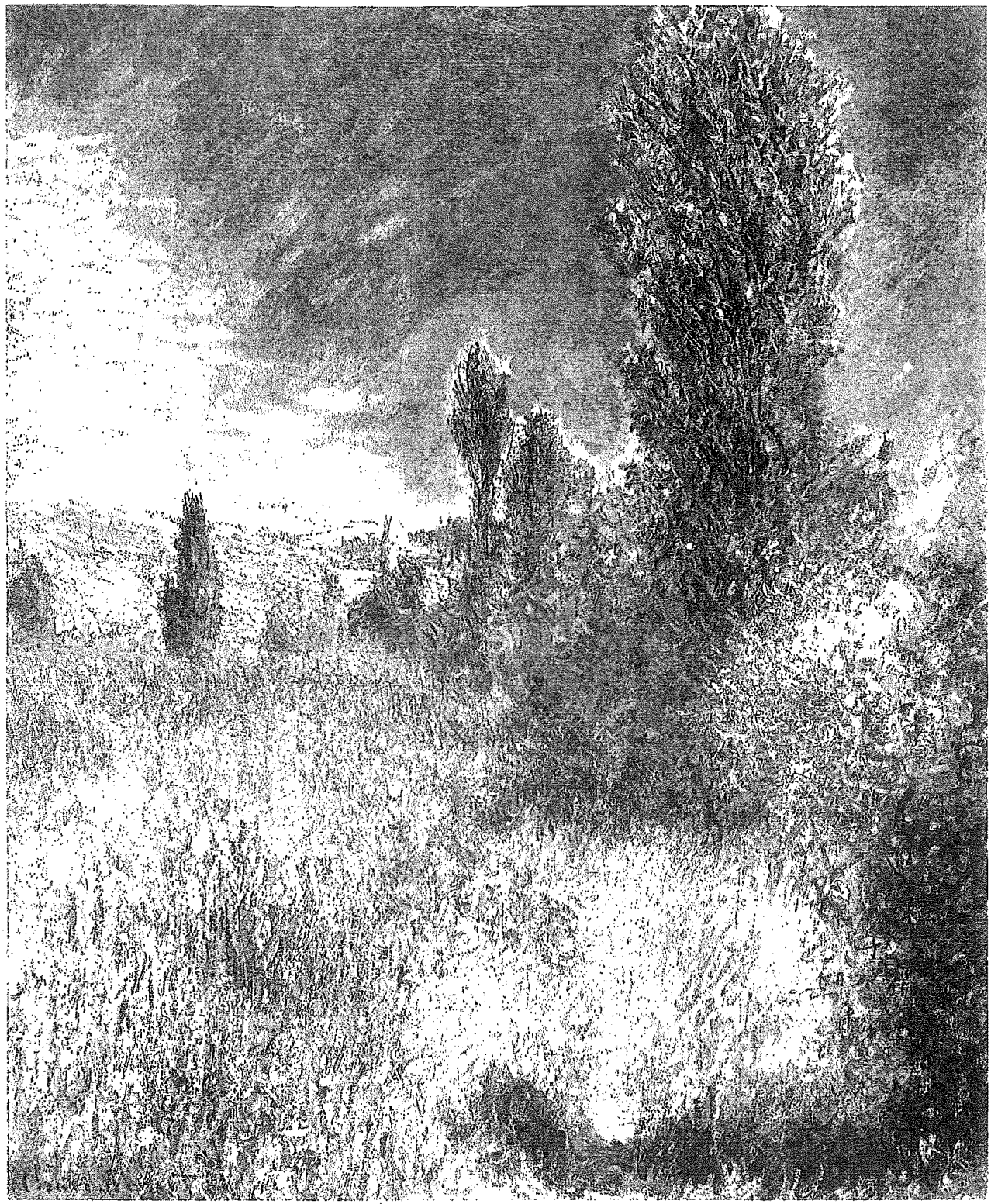

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ABSTRACT

The present research aimed to investigate whether the visual arts could benefit health and healing.

Three experiments were conducted testing two hundred participants in all. Experiments one and two were conducted in a University environment. The emotional response of eighty students in each experiment to a stressful experience was tested in four different visual environments (colourful art, scenery, provocative art, bare walls) under controlled conditions.

Pleasant artworks (condition one and two) were associated with improved mood, more positive emotional memory and lower subjective stress ratings. The findings suggested that pleasant artworks may benefit health and healing .

Experiment three was conducted in a hospital environment and compared the emotional state of patients on the basis of three different well-being measures. Forty patients in similar physical condition were tested in two visually different environments, a bare wall and an artwork condition.

Experiment three, in the hospital environment with patients, could not confirm the results obtained at the University with students.

It was concluded that the hospital research was contaminated with a number of uncontrolled extraneous variables having a positive influence on patients` stress experience. The stress experience could not be controlled for, thus leaving the effect of the artwork on patients` emotional state inconclusive.

The implications of this research will be discussed and suggestions for future research will be given.

CHAPTER I

INTRODUCTION

1. General introduction

The question, whether the visual arts, specifically in public health care institutions, like hospitals, can benefit health or healing becomes relevant when the issue of money matters versus the welfare and well-being of individuals is in debate and demands decisions. While it can be assumed that most Governments are generally concerned about the welfare and well-being of their citizens, the financial means of any Government agency, as for example the health care system, are often restricted and demand decisions as to where the available funds will be allocated.

The following discussion will briefly outline some features of the health care system in New Zealand. The current health care system and its shortcomings will be considered with respect to the underlying philosophical approach of the biomedical model of health that led to the development of this system and will be related to more recent attitude changes towards this approach.

The alternative approach of the biopsychosocial model to health and its advantages and implications will be explained. The role of emotion and stress experiences will be related to people`s well-being and illness. Some of the potential stressors people may encounter, will be described, as will some moderating factors to the stress experience and coping mechanisms that may be available to an individual in stress.

With respect to the major issue of this thesis, whether the visual arts can benefit health and healing, the discussion will continue to focus on the role of emotion with regard to illness and well-being and the potentially emotionally stressful experience of hospitalization for people as well as on aspects of the physical hospital environment. An argument concerning the possible limitations of stress moderators and coping mechanisms in the event of hospitalization follows. The final part of the introductory discussion will be devoted to the meaning of therapeutic environments with specific interest in the visual arts and their potential role as emotion regulator to the stress experience in stressful environments.

Three experiments designed to investigate the major concern of this thesis, whether the visual arts can benefit health and healing, will be introduced. The data analysis and the discussion of the results will follow. The whole thesis will then be summarized with the major findings once more outlined. In the last instance, the thesis will be concluded providing a critical look at the some possible shortcoming of this research and some directions for future research.

2. The health care system

The New Zealand health care system is currently perceived to be in a crisis. It was originally designed under the Social Security Act from 1938, to provide free and unlimited medical and hospital treatment for all, regardless of the nature and duration of care required. The costs of free public health care were to be recovered through taxation (The New Zealand Health Care System, Research discussion paper, No. 20, 1985).

Problems arose when the costs of health care continually increased, while Government spending in the health sector did not increase, but in some instances steadily decreased, putting the free public health care under threat. The funding cuts are largely based on a change in the philosophical approach towards the Welfare State. This new approach, promoting free market ideologies, self-sufficiency and individual independence from the Government, was initiated by ever growing economic pressures. As a result of insufficient funding, there is a steady decline in the quality of health care, forcing the health sector to move slowly towards becoming a private enterprise (Research discussion paper, 1985).

The problem of the health care system is, however, not the rising cost and lack of funding in itself. Much rather, the problem in the health care sector has to be understood as being the result of the underlying conception of health and the respective treatment of illness that has dominated in the past. The discussion about reasons for the failure of the system to provide adequate quality health care for all and about possible solutions to the problem should not become an issue of economic and money matters, but must focus on the foremost important issue at stake here: patient treatment, welfare and of course, health.

3. Conceptions of health

What is health? Health is an ambiguous term. Conceptions of health range from the biomedical model to the biopsychosocial model to holistic medicine. All conceptions are based on a different understanding of the relationship between body and mind. The relationship between body and mind has been at the center of debate of many philosophers for a long time. There are two distinctive sides to the argument. People taking the side of the argument that perceives body and mind to be two separate entities are referred to as dualists and those who perceive body and mind to be one, are referred to as holists (Greek "holos" means whole, Bernard & Krupat, 1994). The two most dominant conceptions of health, the biomedical and biopsychosocial model, are distinguished by these two different philosophical approaches.

The biomedical model

The biomedical model, representing the dualistic approach, conceives the separate entities of body and mind as interacting with each other. Illness and disease occur as result of the failure of one or more of the bodily functions to operate normally and health can be restored by normalizing those functions. Health is thus defined by the absence of disease, focusing merely on the physical aspects of an individual`s being (Eberst, 1984, Bernard & Krupat, 1994). This view ignores the complex nature of illness with influences of physical and psychosocial origin (Bernard & Krupat, 1994).

In the past this biomedical model has dominated western thought and is largely responsible for the curative and restorative medicine and health care of today (Bernard & Krupat, 1994, Research discussion paper, 1985). The biomedical approach has been of benefit in the reduction in many contagious diseases. The curative techniques aimed at fighting the bacteria and viruses as an isolated cause of an illness. The successful elimination of the cause would imply regained health (Bernard & Krupat, 1994).

The essence of the model is that the body could be regarded as a kind of "machine", which could be fixed if "broken" by manipulating the defective part. Over time, the nature of illness changed and the means of treating physical complaints have not only become increasingly sophisticated, but also increasingly expensive. The biomedical approach to health needed revision on the basis of such developments (Research Discussion paper, 1985).

Technological development and cost

As the western world moves towards the beginning of the twenty-first century, many spheres of professional activity have to adapt to the introduction and constant improvement of technology. The area of health care is no exception. At the same rate that the technical quality in health care constantly improved the costs escalated (Research Discussion paper, 1985).

The steady growth of human knowledge and the overwhelming amounts of information and treatment facilities available to health professionals today, increasingly require their specialization in restricted fields. The majority of physicians today represent medical technicians, trained to fight disease and control the body (Duhl, 1986). The aspect of specialization, however, puts the practitioner in danger of overlooking other problems related to the treated illness that may need attention.

The general practitioner, who in the past attended to a large proportion of patient problems of a physical and personal nature is becoming rare. Patients seeking

medical help in present times often get caught up in a system of treatment in large medical institutions, by highly specialized practitioners utilizing computer diagnosis and technological treatment wherever possible. The hospitalization and treatment based on the latest technology are extremely costly and contribute grossly to steadily rising costs (Bernard & Krupat, 1994). Problematic is that the type of illness predominating society today, at least appears to make hospitalization and treatment based on the latest technology inevitable.

Changing patterns of illness

In recent years there is growing awareness of the changing pattern of illness. The steady increase in problems, such as heart disease, cancer, drug and alcohol abuse, venereal diseases, road accidents is related to the ever changing lifestyles and attitudes of people in the developed world. This development indicates the important role of behavioural factors in the etiology of many health threats, correcting the perception of purely physical causes of illness. (Bernard & Krupat, 1994, Matarazzo, 1982, Research discussion paper, 1985, Taylor, 1990). The nature of many of today`s diseases and health problems seems to make expensive specialist treatment, like chemotherapy or heart surgery for example, which rely on ever more complicated technology and expensive chemical medication, almost essential (Bernard & Krupat, 1994).

There are profound negative implications and difficulties with the curative approach to health care. Firstly, expensive specialist treatment, focusing on isolated body parts may have the disadvantage that it can remain ineffective, if it is not also accompanied by a recognition of an individual`s whole being. For example, the successful treatment of heart diseases may have to include efforts towards the change of a patient`s behaviour and lifestyle, like exercise and dietary measures (Taylor, 1990). The crucial point is that specialists are often not in the position to assess the whole human being, but rather, focus on isolated aspects of the person, like the heart or the lung and so forth. Secondly, there is the probability that costly treatment may not be available to everyone who requires it, or when it is required and in many cases treatment for people with serious diseases may also come too late (Bernard & Krupat, 1994).

It appears that one way to reduce the numbers of preventable deaths and escalating health care costs has to involve efforts to be directed towards behaviour modification (Matarazzo, 1982). Since behaviour is understood to be result of a multitude of factors, such as biological, social, psychological and emotional factors, various avenues of intervention have to be considered. The American Heart Association (1988) reported that the modification of just the one risk factor like

smoking could lead to a reduction of 25 % of all cancer deaths and approximately 350.000 premature deaths from heart attack. Therefore, it seems that prevention rather than treatment should gain more attention in health care.

Education and information about lifestyles and behaviour beneficial to health seem to become more important (Taylor, 1990). The biological model ignored the contribution of social and psychological factors in the etiology, course and treatment outcome of illness. Today there is a growing realization that the mental and physical spheres of human beings cannot be separated any longer (Bernard & Krupat, 1994).

Health psychology

In recent years, marked by the slow emergence of health psychology, the perception of health has begun to change. This is partly due to a changing pattern of illness and perhaps more so, due to the increasing costs of health care (Bernard & Krupat, 1994). Health psychology is concerned with the promotion and maintenance of health through better education. It recognizes the existence of an intimate relationship between the body and mind. Health psychologists focus on the underlying mental, emotional, biological and social processes that influence the behaviour determining the prevention of illness and outcome of treatment. Their areas of research incorporate the identification of etiologic and diagnostic correlates of health, illness, and related dysfunction in general and embrace a multitude of factors affecting a person`s health.

The aim of health psychology is to work towards the improvement of the health care system and health policy formation (Matarazzo, 1982). Health psychology involves all areas of psychology and most aspects of health enterprise (Taylor, 1990). The essence of health psychology is that it adopts the biopsychosocial model as a guideline in its approach to health care and offers an alternative or addition to the limited biomedical model.

The biopsychosocial model

The biopsychosocial model, incorporating biological, psychological and social factors in the understanding of illness and health was first proposed by Engel (1977). This model adopts a broader definition of health than the biological model, suggesting that illness and health have to be considered within the context of an individual`s physical, mental and social existence and thus involve the person as a whole (Duhl, 1986, Wella-Brodrick & Allen, 1995, Wella-Brodrick, 1995).

The biopsychosocial model is commonly regarded as representing a holistic view of health care. However, while holistic medicine does represent a

biopsychosocial model it is more complex and is additionally concerned with aspects of the specific meaning of each person`s illness, with a change in the structure of the physician-patient relationship, with the wider implication of therapeutic measures and with a person`s spirituality (Bernard & Krupat, 1994, Gordon, 1990). Holistic physicians recognize the need for a multi-dimensional approach to health care and emphasize the need for a better understanding of the multiple psychosocial dimensions of health and illness (Bernard & Krupat, 1994, Marks, 1994).

The holistic approach appreciates the patient as a mental, emotional, social and spiritual being. Patients are respected as unique individuals and they take up a role as active and responsible partners in their recovery process, rather than being passive recipients of health care. Holistic medicine focuses on mechanisms for the promotion of health and prevention of illness. For some researchers it is regarded as existing on a continuum, ascending from clinical disease to the absence of disease to complete well-being (Antonovsky, 1979, Gordon, 1990).

Based on the 1946 definition of the World Health Organization of the United Nations (WHO) Julius Seeman (1989) described health as "a state of complete physical, mental & social well-being" (Bernard et al.). It is viewed as a positive state of being and not merely as characterized by the absence of disease (Vella-Brodrick, 1995, Vella-Brodrick & Allen, 1995). The conception of health has moved away from focus on the negative aspect of illness, into a more positive direction of well-being, essentially incorporating the care of mind, body and spirit (Cassel, 1988, Levin & Coreil, 1986).

The spiritual dimension, for example, may constitute an important factor in the nature of patient reaction towards the illness or in the speed of recovery from illness. Spirituality, as expressed by the belief in God and participation in religious activities, is acknowledged as being the result of profound socio-cultural learning and as existing independent of any illness. However, the intensity and importance of spirituality has been found to be positively correlated to the severity of illness in hospital patients. More seriously ill people have been found to show more spiritual and religious concerns. Sprituality can be understood as a means of serving to meet people`s psychological and emotional needs. An increase in spirituality indicates the significance of psychological and emotional well-being in times of physical illness. It seems therefore of importance that health care providers take into consideration and respond to patients spiritual as well as psychological and emotional needs (Silber, & Reilly, 1985).

Health, from the holistic perspective, is related to the way people feel and connect everything around them. It is described as the synthesis of external and internal environments blending into a harmonious state of well-being (Duhl, 1986, Pearse, 1980, Wella-Brodrick & Allen, 1995). For some, definitions of health even

extend to the enhancement of life quality (Cheng, 1988, Cummins 1991), and happiness (Diener, 1984, Ryff, 1989). The inclusion of a state of happiness in the definition of health further indicates that emotions take an important role in people`s well-being.

Emotions can be regarded as a function of the person/environment relationship. They have been acknowledged as taking a central role in people`s lives, but their role in personal well-being has not been adequately addressed for a long time (Lazarus, 1991). Previously neither physicians nor psychologists devoted themselves to the study and understanding of emotion. Only in recent years have the emotions been identified as a major contributing factor to and link between psychological and physical well-being. Lazarus`s characterization of emotions as behavioural and physiological, but foremost as psychological phenomena points to the close affiliation of these aspects and suggests strongly that the study of illness and well-being should incorporate considerations of emotions. In the same vein that health in holistic terms is identified as a biopsychosocial construct, Lazarus conceives emotion as a psychosociobiological construct, signifying the great importance of this human asset in the study of physical and psychological well-being.

4. Emotions

Definitions of emotion vary from its conception as a stress response, to an extreme form of affect, or as Pennebaker (1982) describes it, to an affectively toned mood state. It may be pointed out, however, that emotion and mood are not the same. Mood is defined as an "emotional state of mind that transcends particular situational experiences" (Denzin, 1984, p.283). Ekman (1984 in Scherer & Ekman, Eds.) proposes that emotion and mood differ with respect to their physiology and expression. He also points to differences in duration of mood and emotions, whereby emotions are perceived to be more short-lived, while mood refers to longer time spans. Mood is identified by Ekman as an influence on the nature or as a facilitator of emotional experiences. Similarly, emotional experiences can influence a person`s mood state. So, despite their apparant differences mood and emotion exist in an intimate relationship and the research in this thesis incorporates both aspects in the assessment of emotional states.

The large number of theories concerning emotion indicate its broad nature and complexity (Izard, 1991, Pennebaker, 1995, Strongman, 1987). Emotions are recognized as involving cognitive, physiological and behavioural aspects. Adaptive and motivational theories view emotions as an important and valuable motivator and organizing force for action (Frijda, 1986, Izard, 1971, 1972, Tomkins, 1962, 1963), thus emphasizing the physiological apsects of emotions. For cognitive theorists

emotions represent a disrupting and disorganizing force (Arnold, 1960a, 1960b, Lazarus, 1968 in Arnold) thus emphasizing the cognitive aspects of emotions. This thesis represents an approach to emotion, recognizing both the strong cognitive component as well as the adaptive and motivational nature of emotion

Motivational and adaptive theories have an underlying conception of emotion as representing discrete states, as proposed by differential emotion theorists (Izard, 1991). The differential emotions theory supports the proposition of an innate and universal existence of a limited number of primary emotions, representing discrete states. Each discrete emotion, as for example fear, anger, joy, and so forth, is perceived as featuring a distinct set of visceral characteristics, asociated with distinct facial expressions and as leading to a different inner experience with different effects on cognition and action (Izard, 1991, 1971, 1977, Ekman, 1982, Ekman, Levenson & Friesen, 1983, Plutchik, 1980).

Cognitive approaches seem to favour the dimensional analysis of emotion. The dimensional approach to emotions suggests that emotion exists in a three-dimensional space incorporating the dimensions of valence, arousal and dominance. Valence can be understood as portraying the pleasant/unpleasant or positive/negative aspects of emotion. Arousal refers to tension/relaxation or arousal/sleepiness patterns of emotion. Lastly, dominance is associated with aspects of whether a specific emotion asserts feelings of control or loss of control (Lang, 1984, 1985, Mehrabian & Russell, 1974, 1977).

There is evidence that the same emotions can be recognized by the similarity of associated physiological, cognitive and behavioural patterns. However, there is also evidence for a wide range of expressions of the same emotions by the same or different individuals in similar situations at different occasions, which seems to contradict this and poses a problem for the differential emotions theory with respect to predictability. Lazarus (1991) suggest that the consideration of the individual and individual differences, which he regards as long overdue in psychological research, may help to account for those variations. A further difficulty with this theory is, that the notion of discrete emotions fails to accommodate more ambiguous and not easily classifiable emotional and mood states.

The dimensional analysis of emotions offers a solution for the problem of describing emotional experiences on a broader multidimensional scale without being restricted by a unidimensional labeling. Furthermore, the dimensional analysis facilitates accounting for more ambiguous emotional states, like for example stress experiences. Nevertheless, some researchers are worried, whether emotional experiences could be reconstructed if only dimensional values were known (Frijda, 1986). This seems a justified argument and it is therefore decided to combine both approaches into a holistic picture of emotion.

The research in this thesis will utilize methods of assessment of emotional states based on the dimensional as well as the differential analysis of emotions. In agreement with Lazarus (1991) emotions are understood to exist on a multidimensional level. However, there is support for the notion of similar expressional patterns of the same emotions, which must be taken into account. Therefore, despite its limitations, the differential approach is seen as a valuable conception, providing one basis for the assessment of emotions. Both approaches are regarded as having a complimentary role rather than constituting either/or alternatives in this thesis.

The adaptive and motivational theories view certain emotions as innately present and as having significant value for the adaptation of the human organism to environmental demands and as having an important function in the struggle for survival and well-being in the evolutionary cycle of life. This viewpoint proposes the initiation of a sequence of adaptive reactions at the presentation of a stimulus. These reactions are designed to assert influence on the stimulus and involve changes in the autonomic nervous system, cognitive appraisal, and behavioural impulses (Plutchick, 1962).

Fear for example will initiate a so called "fight or flight" response, indicating a way of dealing with the stimulus either by avoidance or by confronting it. Interest is also perceived as an emotion and is viewed as "energizing" behaviour by stimulating mental and/or physical explorative activity (Izard, 1991, p.109). These active behaviours fall into the category of coping with an emotional stimulus. The essence of motivational theories is the notion of behaviour being determined by human emotions or otherwise by the perception of internal events (Izard, 1991).

Internal events refer to the bodily functions of an individual. The inner experience of emotion refers to internal bodily responses of the autonomic nervous system (Frijda, 1986, Lazarus, 1991, Pennebaker, 1982, Selye, 1979). In a neutral emotional state the body is perceived to exist in a harmonious and balanced state, otherwise termed homeostasis. The experience of an intense emotion, however, is associated with changes in physiological arousal, thought to occur without previous appraisal. These internal events or initial physiological changes are conceived as reflecting a disruption to the homeostasis of the body. Once the bodily changes are perceived, the possible causes or reasons can be sought in the situation or event and lead or motivate to an adaptive response or action ultimately aimed at restoring homeostasis.

In contrast to motivational theories, emphasizing internal stimuli and physiological factors, cognitive theories emphasize the role of external stimuli and cognitive factors in the experience of emotions. Emotions are understood to be the result of the perception of external stimuli and their consequent evaluation or

cognitive appraisal as having either positive or negative consequences for the perceiver (Arnold, 1960). The appraisal process is seen as a direct, spontaneous an intuitive action, rather than a deliberate and mediative act. In essence, cognitive theories concede that thought and imagination constitute a major source of emotions (Izard, 1991).

Cognitive models of emotion suggest that aspects of the desirability and certainty of an event, personal effort and attention required from an event, and the extent of control over an event, influence the process of appraisal of a situation and the consequent emotional experience (Smith & Ellsworth, 1985, Roseman, 1979). All these influencing factors point to the strong component of cognitive activity, involving, for example, prior knowledge of the meaning, and about the consequences of certain stimuli, essential for the appropriate appraisal.

Emotional responses related to the aspects of desirability of an event or control over an event for example, implicate cognition, suggesting that an individual`s reaction is meaning based, incorporating "intuitive" knowledge or thought about the positive consequences of the event or of being in control. Izard (1991) writes that: "Perceptual and attentional processes related to objects or events that have no special meaning or emotional significance have a minimal feeling component" (p.93).

Nevertheless, it should also be considered that novelty, from a stimulus with no established meaning, has been found to create fear in some situations or interest in others. Both those emotions feature strongly in motivational theories and arise supposedly without previous appraisal. This indicates, that it may not be sufficient to use one approach exclusively in the explanation of emotional phenomena.

The aspect of the focus of attention, playing an important role in cognitive theories of emotion, was mentioned as influencing emotional experiences. Emotions are seen as disrupting (Mandler, 1984) or disorganizing (Frijda, 1986) attentional behaviour. This conception seems to suggest a negative nature of emotions, contradicting the notion of emotions constituting a positive adaptive and motivational force. The conception of emotions as an attention shifting force (Lazarus, 1991) seems to offer a way of avoiding this conflict. The categorization of emotions as negative and positive is perceived to relate closely to situational factors as well as intensity and duration and requires a flexible approach.

This thesis largely accepts the contentions of motivational and adaptive theories as well as those of cognitive theories. Both theories are regarded as an important and essential contribution to the understanding of emotions. It seems that the overemphasis of either theory impedes the comprehensive understanding and explanation of emotional phenomena. On these grounds, the approach adopted here reflects Lazarus` (1991) cognitive-motivational-relational theory. As the name

suggests this approach does not eliminate, but integrates and combines cognitive and motivational conceptions of emotions.

5. Emotions and health

Generally the health status of an individual is assessed on the basis of patients` self-reports and physical evidence, such as measurements and laboratory results (Lazarus, a). Patients` verbal reports about symptoms and the development or history of their illness reflect a mostly qualitative nature of information, while the physical examination of patients provides additional information of mostly quantitative nature. On the grounds of this information possible dysfunctions and signs of diseases can be detected and can in some cases lend support to theories about the nature of the illness or in other cases disconfirm suspicions about the nature of an illness. However, particularly with view to quantitative measurements, the great variance in individual differences makes it difficult to standardize the interpretation of findings and therefore only combined information will lead to a fair diagnosis. The research conducted in this paper tries to consider both sources of information, but the limited qualifications of the researchers to collect quantitative laboratory data leads to an emphasis of qualitative data based on self-reports.

The holistic approach considers health the outcome of the convergence of a multitude of factors. These factors include biological determinants such as genes, and then there are sporadic accidental events, both representing incidents over which only limited control can be asserted. Environmental conditions or hazards, which will be discussed at a later point, play an important role in health, as well as do life-style habits like drug abuse, diet and exercise, all of which can be largely controlled. The exposure to any of these factors, however, does not affect all individuals in the same way. Individual differences indicated by the variations in people`s physiology and bodily functioning and personality factors, for example, account for significant differences in the implications of those influences on an individual`s health (Lazarus, 1991).

Individual differences are very significant with view to how emotions may affect a person`s health. While human beings seem to be predestined to be susceptible to the experience of emotions, due to a range of internal and external influences, like the approach an individual takes trying to cope with emotional situations and the availability of coping resources to an individual, there are gross differences in the way emotional experiences affect the individual. The same stimulus may elicit a negative response in one person and a positive response in another, defying the notion that emotions can be categorized into "good" or "bad" emotions.

Traditionally different emotions have been acknowledged as representing either negative or positive emotional states. Research has linked some emotions and emotional mood states as being more likely to have negative influences and others as being more likely to assert positive influences on behaviour and health and termed them negative and positive emotions respectively. The argument, however, is not as tangible as it may seem, as some so called negative emotions may also have positive consequences on behaviour in certain situations and vice versa (Lazarus, 1991). From an evolutionary perspective for example the emotion of fear may constitute a healthy reaction in threatening situations, because it can lead to activate responses leading to positive consequences, such as surviving a situation without harm. However, excessive or prolonged fear or anxiety has been associated with negative health consequences. This indicates further that a static conception of emotions needs to be replaced by a more flexible one in order to facilitate a comprehensive understanding of emotional phenomena.

The following discussion will begin with the outline of a so called negative emotional experience referred to as stress, which has been linked to possible detrimental affects to health. It will explore the avenues through which stress and other negative emotional states affect health and avenues through which aversive consequences could be reduced or avoided. This will lead to a discussion of so called positive emotions and their role as a counteragent to the stress experience, fostering health and well-being.

Negative emotions

Negative emotions or mood states can differ in nature. Boredom and depression, for example, are characterized by extremely low levels of arousal. They often result from stimulus-deprivation and they have been linked to severely deteriorated thinking and feeling. In contrast, negative emotions, such as anger and fear, for example, are characterized by extremely high levels of arousal (Cohen, Kessler & Gordon, 1995). While both these extremes have been associated with negative health effects, the latter is perceived the more dangerous with respect to life threats.

In industrialized countries more premature deaths are linked to the cardiovascular system than to any other physiological system (Robinson & Pennebaker, 1991 in Strongman, Ed.). The primary function of the cardiovascular system is the maintenance of homeostasis within the bodily system, challenged by constantly changing metabolic requirements (Papillo & Shapiro, 1990 in Cacioppo & Tassinary, Eds.). A number of lifestyle habits, like smoking, alcohol and caffeine intake, for example, as well as psychological and emotional factors, can affect the

cardiovascular system negatively, leading to the development of cardiovascular disease and the breakdown of a functional immune system, which is implicated in many other health problems (Herbert, Cohen, Marsland, Bachen, Rabin, Muldoon & Manuck, 1994, Manuck, Olsson, Hjemdahl & Rehnqvist, 1992, Bernard & Krupat, 1994, Sime, Buell & Eliot, 1980, Veitch & Arkkelin, 1995, Kiecolt-Glaser, Garner, Speicher, Penn, Holliday & Glaser, 1984). The psychological and emotional pathogenesis of physical disease is thought to be brought about by stressors that cause negative affective states. Emotions, particularly emotionally distressed states like anxiety, fear, and anger are key indicators to Coronary Heart Disease (CHD, Robinson & Pennebaker, 1991). This points to a major role of stressful emotions with respect to health.

6. Stress

The biopsychosocial model of stress

The accumulated findings from over a decade of research have led to the recognition of stress as posing a major health hazard (Davidson & Neale, 1994). Stress can be understood as a reaction to aversive stimuli or perceived stressors and usually incorporates physical, cognitive and behavioural measures (Veitch & Arkkelin, 1995, Volicer & Volicer, 1978). Emotional reactions constitute an essential component of stressful episodes (Cohen et al., 1995), which are characterized by the human organism`s autonomic reaction or adaptive response to the experience of perceived stressors.

Moderate levels of stress are considered to be good for an individual. It was found that people tend to evaluate moderate levels of arousal more positively and intermediate levels of arousal have been found to benefit maximum functioning (Kluge, 1987, Veitch & Arkkelin, 1995). However, high arousal has been associated with impaired performance on complex tasks (Evans, 1978). Furthermore, too much stress, indicated by persistently high levels of arousal, was found to have a negative influence on a person`s health and is suspected to interfere with an individuals` process of recovery from illness (Janis, 1958, Seyle, 1965, Veitch & Arkkelin, 1995, Volicer & Bohannon, 1975). Anxiety provoking situations, for example, are thought to cause or exacerbate illness (Gerdes & Guidi, 1987). The absence or reduction of psychological stress, however, has been found to be positively correlated with improved patient recovery rate, to reduced stay in hospitals and to reduced post-operative use of narcotics (Schuhmaker & Reizenstein, 1984 in Evans, Ed., Volicer & Volicer, 1978).

Stress can result from the encounter with external or internal stimuli or the interaction of both, external and internal stimuli (Perrez & Reicherts, 1992). Emotionally or physiologically threatening external stimuli are known as stressors. External stressors are perceived as environmental events that precede the recognition of stress (Bernard & Krupat, 1994). Internal stressors are identified as emotional and physiological responses to external stressors, also referred to as strain (Selye, 1979). An interaction between the influences of external and internal stimuli evoking a stress reaction can be observed when external stimuli are being appraised as stressors evoking a physiological reaction (Bernard & Krupat, 1994). With respect to this observation then, stress can be regarded as a psychological, biological or psychobiological phenomenon.

Psychological perspective

The concept of psychological stress is based on the understanding that a state of increased mental pressure, caused by a straining situation, results in emotional tension. Situations can be perceived as difficult or straining when certain external or internal factors interfere with the fulfillment of a person`s needs, the performance of a task, or if they somehow pose a danger or threat to the individual (Kluge, 1987). Stress is thought to occur when environmental demands on people force them to change in some way, implicating and exhausting available coping resources (Veitch & Arkkelin, 1995).

The psychological perspective on stress emphasizes that the interpretation and appraisal of certain stimuli as stressors or as being benign play a crucial role. The perception and evaluation of certain events or stimuli as stressors is influenced through learning and experiences (Veitch & Arkkelin, 1995, Cohen et al., 1995). According to Lazarus and Folkman (1984) the appraisal of a stimulus as threatening, called primary appraisal, is followed by a stress reaction. The appraisal of this stimulus, requiring a coping response, is called secondary appraisal and leads the individual to evaluate their coping abilities, which are directed towards reducing the effects of a stressful stimulus.

Biological perspective

The biological perspective on stress focuses on internal stressors indicated by changes in the physiological system in response to physical and psychological demands. Emotion-induced physiological changes have been identified as having an impact on all major biological systems of the body (Selye, 1979). Selye termed these changes in physiological arousal as a non-specific response of the body to a stressor.

Biological responses to stressors, signified by an increase in emotional arousal, involve amongst others breathing rate, galvanic skin response and the cardiovascular system, which is directly effected by alterations to an individual`s emotional state and related levels of arousal (Cohen et al., 1995). Emotionally induced responses of the cardiovascular system such as increased heart rate and systolic and diastolic blood pressure have been implicated in the development of cardiovascular disease and of immune changes that might alter susceptibility to immune mediated disease (Herbert et al., 1994, Manuck et al., 1992, Bernard & Krupat, 1994, Sime et al., 1980, Veitch & Arkkelin, 1995).

Evidence for changes in cardiovascular responses to stressors was found when participants in a laboratory study were exposed to a quiz interview designed to create emotional stress (Sime et al., 1980). Changes in heart rate were also found to be positively correlated to hospital stress for patients with both minor medical and surgical illnesses. Changes in systolic and diastolic blood pressure were positively correlated to hospital stress in patients with serious illnesses (Volicer & Volicer, 1978).

The primary pathway linking emotions to disease is thought to be hormonal. The experience of intense emotions and stress is perceived as a disruption of homeostasis or equilibrium of the body (Seyle, 1979, 1956, Selye, 1985 in Monat & Lazarus, Eds., Veitch & Arkkelin, 1995). In this vein psychological and emotional states have been linked to the activation of the hormonal endocrine system, causing chemical imbalances and vice versa (Robinson & Pennebaker, 1991 in Strongman, Ed.). There are a number of different hormones implicated in the pathogenesis of cardiovascular disease and diseases involving the immune system (Herd, 1986). The normal functioning of this system is critical for the resistance of infections, the healing of body tissue and for the control of arousal and emotions (Robinson & Pennebaker, 1991).

Selye suggested that the stress experience underlies the so called "General Adaptation Syndrome" model (GAS), indicating the existence of an automatic bodily coping mechanism. In the first of Selye`s three stage model, known as alarm stage, the sympathetic nervous system responds to a stressor or strain with the stimulation of the adrenal system releasing hormones. The second stage, known as resistance stage, is characterized by a physiological reaction expressed in increased levels of arousal. The high hormone level in this state of increased arousal constitutes a strain in itself, disrupting homeostasis leaving the body vulnerable to disease. The third stage of this model, signified by exhaustion of the body due to prolonged resistance, is thought to lead to a breakdown of bodily defenses implicated in the immune system.

There is evidence to support the notion that a functioning immune system is impaired during stressful experiences. Accordingly, under conditions of high personal

stress the count of natural anti bodies was found to be lowest, leaving the body vulnerable to the development of disease or weak in the fight against disease (Locke, Hurst, Williams, Heisel, 1978). The immune system has the important function of assisting the body in the fight against hazardous microbes, viruses, parasites, infections and in the recuperation of diseased or damaged cells. The failure of the immune system to perform normally puts the body at risk for various health problems (Kiecolt et al., 1984).

A critical finding is also that the immune system is not easily restored. The intensity, duration and frequency with which an individual is exposed to stressors is of great significance in the coping process. Depending on the magnitude of the stressor, the normal operations of the immune system can be compromised for anything between a few hours to days and even weeks (Kiecolt-Glaser & Glaser, 1988).

7. Sources of stress

Major life events

Traumatic events, such as catastrophic accidents and physical assault and so forth, are recognized as a major source of stress (Atkinson, Atkinson, Smith, Bem & Hilgard, 1990). Major Life events, or so called macro events, such as marriage, divorce, death of a partner or the event of serious illness have also been implicated as stressors in the Social Readjustment Rating Scale (SRRS, Holmes & Rahe, 1967). The SRRS was devised as an instrument for stress measurement. Studies showed that a major life change, such as the event of sudden illness rates fairly high on the scale of stress factors (Volicer & Bohannon, 1975, Weinberger, Hiner & Tierney, 1987, Lazarus, 1984). The link between major life events and illness has not been found to be very strong, but it is hypothesized that the magnitude of major life changes determines the extent of effort needed to adapt. The expense of energy in the adaptation process is thought to affect the body`s natural defense mechanisms, leaving it vulnerable to disease (Dohrenwend & Dohrenwend, Eds.,1974).

Sudden illness and consequent hospitalization is a major life event indicating life change. It has been ranked in sixth place out of forty three events on the Social Readjustment Rating Scale (SRRS). Hospitalization is often associated with intense psychological distress and suffering (Hoffman, Becker & Gabriel, 1976). Most people are stressed and vulnerable from the moment of hospital admission (Schumaker & Reizenstein, 1984 in Evans, Ed.). The psychological and physical reactions to hospitalization are influenced by a multitude of factors posing as potential stressors (Volicer & Volicer, 1978, Volicer & Bohannon, 1975).

Firstly it has to be considered that hospitals are institutions generally based on the biomedical model of illness. They are designed to diagnose, treat and cure large numbers of patients with diverse needs. Hospitals represent places where the body gets first rate care, but often the mind and spirit is neglected. Efforts of the medical and nursing staff are being primarily directed towards the physical needs of patients. In this system patients are often referred to by staff in terms of their medical case, like "the broken arm in room 105" and not in terms of their personal characteristics. Limited attention is paid to the patients` whole being, including their mental and emotional needs adding to the stress experience (Bernard & Krupat, 1994).

Reasons for experiencing hospital admission as stressful include first of all the physical illness, which on its own threatens coping resources (Cohen & Lazarus, 1979). Hospitalization also implies a serious illness for many patients, which evokes fears about the diagnosis, prognosis of treatment outcome (Taylor, 1990, Volicer & Bohannon, 1975). Emotional responses in patients can be attributed to physical threats, such as pain and psychological threats, related to uncertainty and the hospital environment (Shumaker & Reizenstein, 1984, Teichman, Ben Rafael & Lerman, 1986, Volicer & Bohannon, 1975). The unfamiliar surroundings and the fact that hospitals are often perceived as a place of unpleasantness, associated with death further contribute to a stressful experience (Taylor, 1990, Volicer & Bohannon, 1975).

Hospitals can be stressful environments for everyone involved with them (Shumaker & Reizenstein,1984). Most people, not only the patient, but also their relatives and friends are stressed and suffer emotionally at hospital admission (DeJong, Erdman, Marcel, Van den Brand, Verhage, Trijsberg & Passhier, 1994, Shumaker & Reizenstein, 1984, Teichman et al., 1986). At this stage patients are particularly vulnerable and receptive toward additional stressors and stressful influences that go beyond their illness, which may exacerbate the negative emotional experience (Shumaker & Reizenstein, 1984).

The theory of emotion contagion suggests that the emotional reaction of patients may even be influenced by the emotional state of the people in their immediate vicinity (Hammer, Jones, Lyons, Sixsmith & Afficiado, 1985, Teichman et al., 1986, Vanderveer, 1949). With respect to depression in children who are hospitalized, the parents of these children were found to show significantly more maladjustment and emotional problems (Kashani, Venzke, Millar, 1981). There may be an interaction between the emotional states of family members, friends, room mates or even nurses and doctors who may influence a patient`s emotional hospital experience and vice versa (Shumaker & Reizenstein, 1984). Others have proposed that a transmission of emotional reactions may occur as a result of modeling (Bandura, 1977, Sullivan, 1953). Considering these findings it seems evident that

attempts to reduce the stressful experience of hospitalization must incorporate personal, interpersonal and environmental factors influencing all people involved (Teichman et al., 1986).

The hospitalization of a family member can be conceived as a crisis in family life (Caplan, 1964). It constitutes a disruption of a normal and familiar way of life and of the social network, in which patients experience the separation from family and friends (Rosenberg, Peterson, Hayes, Hatcher & Headen, 1988, Teichman et al., 1986, Volicer & Bohannon, 1975). Communication inevidently suffers as a result of the physical separation of patients and their confidants, impeding the means of stress relief through emotional disclosure. Furthermore, the disruption of the social network has also been linked to depressive reactions (Mueller, 1980).

Hospitalized patients often experience a feeling of helplessness and loss of control (Freud, 1952, Goffman 1960, Volicer & Volicer, 1978). Hospitals are characterized by a strong hierarchical organization with clear status differences (Shumaker & Reizenstein, 1984). The patient is expected to submit to professional authority and to surrender virtually all control over practically all previously independently performed activities (Schumaker & Reizenstein, 1984, Rosenberg et al., 1988, Volicer & Volicer, 1978). From the moment of admission to a hospital, patients are required to conform unconditionally and assume a depersonalized status (Shumaker & Reizenstein, 1984). However, compliance accompanied by passive behaviour indicates cognitive, motivational and emotional deficits. These deficits are implicated in the theory of learned helplessness which serves to explain depression (Seligman, 1975).

The experience of depersonalization and loss of control can lead to emotional reactions, such as depression and stress (Raps, Peterson, Jonas, & Seligman, 1982, Volicer & Volicer, 1978). Estimates of the incidence of depressive mood range from one fifth to one third of affected hospitalized patients (Kashani, Venzke & Millar, 1981, Rosenberg et al., 1988). The loss of interest and pleasure were most frequently reported symptoms (Kashani et al., 1981). Patients awaiting surgery or medical intervention are more likely to perceive themselves as stressed due to the experience of emotional tension in the form of anxiety and fear and restricted coping resources (De Jong et al., 1994, Gerdes & Guidi, 1987).

Hassles

Furthermore, cumulative minor short-term disturbances, so-called micro episodes, termed daily hassles, have been identified as stressors (Gruen, Folkman and Lazarus, 1988). Events like misplacing items, waking in the middle of the night and not being able to continue sleeping, having an argument, having to wait or wasting

time have been included in the "Hassles and Uplift Scale", indicating the broad nature of potential daily stressors. More recent research suggests that the measurement of daily hassles may provide a better indicator of emotional and physical well-being than major life events (DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982). Both Scales provide measures of different sources of psychological stress, but with all associated circumstances represent environmental characteristics that interfere with normal human functioning creating physiological and psychological discomfort (Lazarus, 1984, Veitch & Arkkelin, 1995).

Novelty

Stimuli, which are novel and unknown to an individual or an event that has never occurred can elicit stressful emotions (Izard, 1991, Veitch & Arkkelin, 1995). Novel and unfamiliar stituations create uncertainty, because of the lack of means of judgement about the nature of the situation. The individual does not know what to expect at the presentation of an unfamiliar stimulus and cannot anticipate or predict the consequences of an approach or avoidance behaviour. The attitude and consequent reaction towards such an obnoxious stimulus is said to be influenced by previous experience, which helps to appraise the stimulus as either good or bad (Veitch & Arkkelin, 1995). Without previous experience the appraisal of a stimulus is not immediately possible. Consequently, novelty has been described as one of the most consistently effective stressors that can provoke an arousing, unpleasant and anxiety eliciting situation leading to a stress reaction (Oken, 1967).

8. Emotions and the physical environment

The short-comings of physical environments in meeting peoples` needs have been strongly associated with the occurrence of many minor hassles contributing greatly to stress experiences. In the past physical environments have been grossly neglected with respect to considerations of what influences they may assert on the perceiver or how and by which means they may affect an individual. More recently, society has become increasingly aware of the possible negative side effects of industrialization and population growth on their natural environments. There is a growing concern about the negative side effect that environmental stimuli, including those of built environments, have on people`s health and well-being (Veitch & Arkkelin, 1995).

Environmental psychology is an interdisciplinary subject incorporating knowledge from areas such as the social sciences, economics, meteorology, biology as well as architecture, law, and more. It is concerned with investigation into the

relationship between the physical environment and the human being, aiming towards a better understanding and consequent improvement of this relationship. The relationship between the physical environment and human beings is conceived as an interrelationship, whereby not only the environment asserts influence on the individual, but the same is true vice versa (Veitch & Arkkelin, 1995).

Affect is regarded as an inseparable companion of behaviour and thought within any environment, whereby the affective state represents an important indicator of the nature of a person`s interaction with an environment (Ittelson, 1973, Izard, 1970, Lazarus, Kanner & Folkman, 1980, Mehrabian and Russell, 1974). Mehrabian and Russell argue that arousal constitutes a major component in people`s affective response to their environment. The environment-evoked emotional responses have been defined by them on a three different dimensional level as pleasure/displeasure, the degree of arousal and submissiveness/dominance. Another researcher defined the aesthetic and affective responses to environmental stimuli and the as like-dislike affect (Zajonc, 1980).

The so called arousal theory in environmental psychology contends that changes in arousal are associated with changes in the environment. Pleasant as well as unpleasant stimulations are perceived to increase arousal, motivating individuals to employ adaptation and coping processes in order to achieve more moderate and physically more comfortable levels of arousal (Veitch & Arkkelin, 1995). The aesthetic perception of stimuli, like natural settings or landscapes for example, is conceived to elicit emotional and non-observable adaptive responses, implicating a relaxation response. This is exemplified by the reduction of high arousal in a stressed individual at the encounter of an attractive natural view. The visual stimulus may elicit feelings of pleasantness, capture the interest of the individual and possibly block or reduce stressful thoughts, hence fostering well-being (Ulrich, 1979, Ulrich 1983). The theory implies an interaction between different potentially competitive stimuli influencing emotional responses and arousal patterns, possibly outweighing each other. With respect to the effect of visual arts on stressed individuals in a stressful environment this aspect is particularly interesting.

Research in aesthetic perception found that with respect to the perceived pleasantness of forms or shapes, for example, environmental stimuli can have a meaningful affect on an individual`s emotional state without cognitive processing. Emotions are suggested to be the direct result of specific arousal patterns independently of appraisal (Zajonc, 1984). From this so called "pick-up" view point images, colours, lines, angles and other distinctive features are suggested to derive meaning or appreciation from direct links to arousal patterns (Smets & Overbeeke, 1987). Accordingly, features of visual scenes are thought to elicit an initial emotion, a feeling of like-dislike, which in turn generates impulses that produce physiological

arousal leading to further adaptational processes, like approach, or avoidance at dislike (Ulrich, 1983).

This contention appeals strongly to the evolutionary conception of emotional development, suggesting that arousal patterns precede recognition. From an evolutionary viewpoint the colour red for example could have been innately linked with arousal patterns associated with dislike, functioning as a warning sign of possible dangers like fire, or a link between the perception of sharp jagged edges, as found in teeth, and arousal patterns associated with dislike, could also have functioned as an indicator of the dangerous predatory nature of another creature. There is evidence from research into facial features, which supports the notion that certain features are frequently judged as more positive and likable than others without any apparent reason (Zebrowitz, 1990). The pick-up viewpoint may offer an explanation for the phenomenon that so many people often express their liking or disliking for visual stimuli like landscapes or even artworks for example without being able to justify it, other than that it being "just a feeling". This "feeling" could represent the meaningful arousal pattern linked with certain features proposed to exist by the pick-up view.

A strong challenge for the pick-up view would come from Gestalt psychologists, who suggest that affective reactions result from the configuration of the whole visual scene, rather than from its individual features (Ulrich, 1983). This approach emphasizes the role of cognitive factors, which have already been recognized to play an important part in emotional experiences. There is evidence that individuals tend to integrate information input, employing memory and problem solving strategies in order to make sense of visual stimulation. Since this thesis has adopted a cognitive/motivational approach, it seems that both contentions have a place. More research may be required to strengthen the pick-up view point, as there may be a variety of other factors, as outlined by Gestalt theorists, influencing individuals` liking and disliking of features. However, it appears an interesting contention to keep in mind with respect to the perception of art, which is a major focus in this thesis.

Another important approach fostering the understanding of environmental influences on emotional experiences is the so called stimulus load theory. It emphasizes the role of the number of stimuli a person is presented with and their effect on the emotional responses. According to this theory people have a limited information processing capacity. Overstimulation occurs when an individual is presented with large number of stimuli simultaneously, which exceed the individual`s adaptive resources. This cognitive overload can lead to negative emotional states signified by high arousal and result in frustration, anger, decrease in tolerance, and so forth (Veitch & Arkkelin, 1995). Understimulation, on the other hand, as it may occur

in stimulus-deprived environments, like prisons or hospitals, can lead to a lowering of optimal arousal levels and, like overstimulation, can also be aversive. Understimulation may result in excessively low arousal associated with depression and boredom (Berlyne, 1974, Veitch & Arkkelin, 1995).

The concept of complexity, although not directly related to stimulus load theory has a similar proposition. Complexity refers to the number of independently perceived features of a given stimulus rather than the environment as a whole. Aesthetic complexity is related to pleasantness in a U-shaped manner (Berlyne, 1971). High preference is associated with moderate levels of complexity and low preference with high or low complexity (Ulrich, 1983).

Mehrabian and Russell (1974) seemed to have extended the concept of complexity and termed it information rate. It relates to the relationship between stimulation levels of an environment, degrees of arousal and positive or negative responses respectively (Veitch & Arkkelin, 1995). Arousal has been identified by Mehrabian and Russell as a direct correlate of information rate, which incorporates components such as simplicity/complexity, homogeneous/heterogeneous, patterned /random, and so forth (Veitch & Arkkelin, 1995).

It appears that the notion of information rate may provide an interesting and perhaps useful concept with regard to the emotional impact of visual artworks. The nature of the information rate is said to determine the emotional impact and consequent experiences of pleasantness or unpleasantness and liking or disliking, which in turn influence approach and avoidance behaviour (Meharbian & Russell, 1974).

The combined contributions of each of the different theoretical approaches in environmental psychology, have helped to improve our understanding of the impact of environmental factors on human beings. There are a number of stimuli in the physical environment that have been identified as environmental stressors. Positive environmental stimulation will be discussed in a later section on therapeutic environments.

9. Environmental stressors

The foremost function of hospitals as public institutions is that of caring for ill people and nursing them back to health in the best possible way. This requires hospitals to be very efficient and reliable. The design of the hospital environment is often complicated by the large number of different activities performed in a hospital. Obviously one of the main tasks in the design of hospitals must be the accommodation of all specialist requirements involved in hospital care that is most beneficial to the unimpeded and smooth running of the daily tasks. Hospital designs

have to serve practicality, facilitating all medical activities, but it would seem important to consider the affect of the "practical" environment on all patrons frequenting the hospital. It appears that the comfort of patients, their families and friends nurses, doctors and so forth should also play a part in hospital designs (Heimstra & McFarling, 1974).

Many environmental stimuli in hospitals can function as stressors and the inherent stress in patients` physical condition makes them particularly vulnerable to environmentally induced stresses (Veitch & Arkkelin, 1995). Environmental psychologists have recognized that noise, temperature, attractiveness, lighting, architectural designs and crowdedness as well as unpleasant smells and odors all can pose as potential environmental stressors (Topf, 1984, Veitch & Arkkelin, 1995). Traditionally hospitals have given limited attention to the interaction between the individual and aversive physical aspects of the environment and health (Topf, 1984). However, it is increasingly recognized that the environmental conditions play an important role in the patients` emotional experience during hospitalization (Cotton & Geraty, 1984, Quick & Quick, 1984, Topf, 1984).

Minor events related to the environment, earlier described as hassles, can contribute to stress reactions. Patients who recover from treatment or surgery in the confinement of their room have been found to seek relief from growing boredom with walks to the cafeteria or shops for example (Shumaker & Reizenstein, 1984 in Evans, Reizenstein & Grant, 1981). Wayfinding can be an annoying task for hospital patients and has been reported as one of the first sources of stress directly linked with the environment (Shumaker & Reizenstein, 1984). The inability to find one`s way can cause feelings of helplessness and result in an associated negative emotional state.

Intensive care units with a busy atmosphere due to constant activity and noise have been found to be unfavourable environments, unconducive to sleep (Walker, 1972). Noise can represent an aversive stimulus and as such can be defined as any sound that is physically arousing and experienced as subjectively annoying and stressful (Glass & Singer, 1972, Sorenson and Schultz, 1968, Topf, 1985). Increases in noise levels have been associated with changes in arousal and performance (Evans & Cohen, 1987, Glass & Singer, 1972, Veitch & Arkkelin, 1995). The physiological affects of hospital noise have been positively correlated to patient discomfort (Minckely, 1968) and have been documented as relating to slower recovery (Falk & Woods, 1973).

As well as audible stimuli, visual stimuli have been found to have a direct influence on physiological arousal and can also function as stressors (Glass & Singer, 1972, Shumaker & Reizenstein, 1984). Bare white rooms, long sterile pathways and stainless steel utensils for example are thought to represent unfavourable visual

stimuli for hospitalized patients, already prone to anxiety and stress experiences with high levels of arousal (Bernard & Krupat, 1994, Veitch & Arkkelin, 1995).

The aspect of crowdedness has been identified to contribute significantly to patient discomfort, thus functioning as a stressor. Patients have been found to move about to avoid the crowded conditions in their rooms, despite their physical condition not really allowing for such activity. A lack of privacy of patients, also often a result of over-crowding, can function as a stressor (Ronco, 1972).

10. Moderating factors to the stress experience

Individual differences

Concerning major life events and daily hassles, it has to be noted that the stimuli in themselves cannot be made responsible for a possible negative influence on a person`s health. Many individuals experience major life changes and cope without becoming ill. Research established that for one third of the people an increase in daily stress was accompanied by moderately improved mood and health. However, the majority of people, experiencing a multitude of hassles in one day, reported an increase in physical symptoms and exhibited depressed or anxious moods (DeLongis, Folkman, & Lazarus, 1988).

Two types of behaviour pattern in people have been identified as playing a major role in the susceptibility of stress and stress related problems. The type A behaviour pattern is characterized by an extremely competitive and achievement oriented behaviour. People exhibiting the type A behaviour pattern become easily aroused with negative emotions like anger and general hostility, constantly express a timely urgency and find it hard to relax. People exhibiting the type B behaviour pattern are not as competitive, do not become as easily aroused, lack that sense of urgency and find it easier to relax. The type A personalities are more likely to experience negative health effects as a result of their disposition and associated increased stress experience than type B (Bernard & Krupat, 1994).

Trait anxiety scores have been identified as a competent predictor for the extent to which an individual will experience anxiety at the event of hospitalization (Teichman, Ben Rafael & Lerman, 1986). Similarly, pre-hospitalization depression was found to be the greatest predictor for depression in medical patients (Rosenberg, Peterson, Hayes, Hatcher, Headen, 1988). Further, individual differences may be found in so called hardiness. Hardiness is described as involving personal physical fitness and personality factors. Greater physical fitness is thought to help an individual to endure the physical effects of stress better, but also to experience less physiological arousal at the presentation of a stressor (McGilley & Holmes, 1988,

Roth, Wiebe, Fillingim, & Shay, 1989). Psychological hardiness refers to a person`s general perception of being in control of one`s life (Kobasa, 1979).

Control

Perceived control has been identified as an effective moderator of the stress experience. Control refers to direct physical or cognitive control over the stressful stimulus. Individuals, who perceive themselves in control are equipped with a faith in their capability to cope effectively. They are more confident and perceive themselves as being able to predict events and to determine consequences (Veitch & Arkkelin, 1995). Control can refer to the intensity, the duration and the frequency of the occurrence of a stressor. Research findings suggest that people show fewer negative physical symptoms if they effectively are in control, or if they perceive themselves in control without actually having true control over the stressor (Glass & Singer, 1972, Staub, Tursky & Schwartz, 1971).

Cognitive control refers to the appraisal processes concerning a stressor and may involve access to information about the stressor prior to the individual`s exposure to it. Cognitive control incorporates the aspect of predictability and expectation. People have been found to show less physiological arousal and reported less distress when the stressful event could be predicted (Katz & Wykes, 1985). Studies in medical settings established that the stress reaction related to awaited surgery can be reduced by providing patients with information about the procedure and giving them the opportunity to form more accurate expectations (Johnson & Leventhal, 1974, Taylor & Clark, 1986).

Social support

Research into traumatic or major life events established that social support can buffer the stressful experience for an individual in different ways. Friends and family can support by physically helping to remove the stressful stimulus if necessary (Veitch & Arkkelin, 1995). Feelings of helplessness can be reduced and confidence in one`s ability to cope can be increased through the help of friends and family. They can provide information and advice, emotional security and comfort, distraction and financial or material help if needed (Atkinson et al., 1990, Pilisuk, Boylan, & Acredolo, 1987).

Furthermore, social contact may offer opportunities for self-disclosure (Pennebaker, Hughes, & O`Heron, 1987). The process of self-disclosure involves the expression of stressful emotions. (Pennebaker & Beall, 1986). Inhibited emotional expression is suspected to function as a stressor (Pennebaker, 1989). A consequence

of long term suppression can be a decreased immune efficiency, which makes people more susceptible to illness and also prevents quick recovery (Schwartz & Kline, 1995 in Pennebaker). Over time, disclosure is associated with less inhibition and a consequently lower stress level and improved immune function (Pennebaker, 1995).

Spiritual support

Holistic medicine considers health and illness within the spiritual context in which they occur and takes this into consideration in the healing process (Gordon, 1990). Spirituality has been found to become more important and intense with increased severity of illness in hospital patients. A study of elderly people found that among those who were in poor health and who regarded religion as a source of comfort and strength, the mortality rate was lower (Zuckerman, Kasl & Ostfeld, 1984). Benson (1975) suggests that traditional religious practices like meditation and prayer may function as helpful relaxation technique, moderating the stress experience and fostering the recuperation from stress besides serving the spiritual needs of an individual. Prayer is also recognized as a means of self-disclosure, which has already been identified as a moderator of the stress experience (George, 1995 in Pennebaker, 1995).

Relaxation response

Relaxation is also an important factor in holistic medicine (Gordon, 1990). The ability to relax may greatly influence or moderate the stress experiences. In the same vein as heightened physical or psychological demands on an individual elicit a stress response, characterized by an increase in physiological arousal, a lowering of physical and psychological demands, elicit a relaxation response, characterized by decrease in physiological arousal (Benson, 1975). Benson argues that a quiet environment, a comfortable body position, closed eyes and a repetitive mental device can provide the right kind of stimulus to evoke a relaxation response.

In coherence with this argument, deep muscle relaxation has also proven effective in the reduction of negative emotional states. Deep muscle relaxation was correlated to significantly lower anxiety score in patients awaiting dental surgery continuing to last throughout the entirety of the visit (Lamb & Strand, 1980). Similarly Anxiety Management Training (ATM) and Relaxation Self-Control (RSC) techniques, were found to provide effective tools in anxiety reduction and lowered physiological arousal scores (Cragan & Deffenbacher, 1984).

Mood -positive emotions

The negative emotional state of stress is conceived as being closely related to a person`s mood state (Taylor, 1990). Respectively, individuals with chronically bad or negative mood and those who are consistently pessimistic about life, reported greater levels of distress and minor health problems (Costa & McCrae, 1987, Pennebaker, 1983). Findings that reduced stress was positively correlated with improved mood or successful recovery seems to support the contention that improved mood may reduce the stress response. Individuals exhibiting the Type A behaviour pattern have also been described as people of negative emotion, implying the existence of negative mood, which would relate mood also to the high rate of heart disease incidence in these people (Booth-Kewley & Friedman, 1987)

Support for the contention that happy and positive people are more healthy is controversial (Robinson & Pennebaker, 1991 in Strongman). Nevertheless, the finding of a positive correlation between humor and positive emotions has led researchers to suggest that humor may be a potential buffer to the stress experience (Porterfield, 1987, Rotton, 1992). Physiological measures of immune system functioning supported the notion that it may serve as an effective measure to deal with stress (Dillon, Minchoff & Baker, 1985, Dixon, 1980).

Optimism is associated with perceived control and people who display an optimistic attitude appear to experience fewer physical symptoms and may show faster or better recovery from certain illness. In an overall picture, it seems as if positive emotional states, particularly optimism can assume a protective role concerning the development and course of illness (Scheier & Carver, 1985a).

11. Coping

To this point it has become clear that stress constitutes a state of increased mental tension, bringing about emotional changes (Kluge, 1987). Individuals experiencing a negative emotional response as a result of a stimulus being appraised as threatening, discern themselves as stressed, when they perceive the environmental demands to exceed their ability to cope (Cohen et al., 1995). The failure of the automated processes in emotion regulation to re-establish homeostasis is conceived as resulting in stress and stress related emotion (Scherer, Wallbot, Tolkmitt, & Bergmann, 1985, Frijda, 1986).

Stress motivates active coping involving behavioural and cognitive efforts (Cohen et al., 1995, Lazarus, 1991, Veitch & Arkkelin, 1995). Coping is aimed at relieving the emotional stress response and is described as an active process to alleviate the physical and mental discomfort (Atkinson et al., 1990, Cohen et al.,

1995). People tend to engage in coping strategies in order to achieve more moderate levels of arousal. Coping is a direct effort of the individual to change the stressful situation regardless of whether it is internal or external in origin (Cohen et al., 1995).

Coping strategies may involve direct actions towards altering the threatening condition or they may involve changes in behaviour or thought (Cohen et al., 1995). The mechanisms involved can be described as emotion focused coping or problem focused coping. They can be situation-oriented, evaluation-oriented and representation-orientated coping. The choice of one coping process in favour of another may be partly determined by situational factors or individual differences (Aktinson et al., 1990, Perrez & Reichert, 1992).

Problem or situation focused coping is concerned with changes to the threatening situation itself, whether it is internally or externally located. This type of coping is directed towards the active manipulation of the stimulus, but may also involve evasion, withdrawal and passivity (Perrez & Reichert, 1992). Problem focused coping may not always be possible as a situational factors, for example may prevent the individual from asserting direct influence on the threatening situation. If problem focused coping is not possible, emotion focused coping may be the only resource. In most stressful encounters though, people tend to engage in both types of coping processes (Folkman & Lazarus, 1980).

Emotion focused coping or emotion regulation is concerned with the direct restoration of a state of homeostasis (Lazarus & Launier, 1978). It can be conceived as the individual adopting a number of defense mechanisms or certain cognitive strategies or actions, which are aimed at minimizing the effect of the stressful stimulus and the stressful experience. This type of coping is not directed at the stimulus itself, but rather at the perceived reality of the stimulus (Lazarus & Launier, 1978, Perrez & Reichert, 1992).

Evaluation-oriented coping or rationalization is another strategy of emotion focused coping. It may involve changes of personal intentions or goals, which are threatened by the stressor and the re-evaluation of the situation (Perrez & Reichert, 1992).

Representation-oriented coping belongs in the sphere of emotion focused coping. It involves cognitive changes concerning the representation of a stimulus as threatening and may incorporate search for information or suppression of information (Perrez & Reichert, 1992).

Denial

Emotion focused coping can also be termed avoidant coping as it involves the avoidance of the direct confrontation with the stimulus itself. Denial of the existence

of a threat, or the repression of thoughts concerning the threatening stimulus are examples of avoidant coping. However, avoidant coping like denial may be successfully applied only as a short term solution, providing immediate relief to a stressful situation. Often in the longer term avoidant coping like denial or repression is not very successful or helpful and problem focus coping may become necessary. The denial of a serious illness may initially provide relief by allowing the individual to take more time to adjust and cope in other ways, but it may be detrimental if it prevents the individual seeking help (Atkinson et al., 1990).

Rumination

Avoidant coping in the way of the suppression of thoughts concerning a threatening stimulus can be a stressful experience in itself. Rumination is a process, whereby the individual gets caught up in a cycle of active thought suppression, requiring an awareness of the threatening thought, so it can be suppressed, hence becoming an intrusive thought, which is countered by renewed efforts of suppression, maintaining the flow (Wegner & Lane, 1995, in Pennebaker). Thus thought suppression represents a potentially unsuccessful coping strategy.

Attention diversion/Distraction

Evidence that avoidant strategies can be successful comes from research in the area of attention diversion or distraction, which can function as emotion regulator (Taylor, 1990). Stress is found to increase self-focused attention, which intensifies ongoing negative affect and is related to poor adaptional outcome (Scheier & Carver, 1985). Self-focus, on the other hand, is also said to aggravate the impact of life stress events (Hull, Young, & Jouriles, 1986).

It is suggested that attention is typically directed towards stimuli that are novel, distinctive, unexpected or otherwise salient. Changes in arousal levels can be regarded as novel stimuli for the individual leading to heightened self-focused attention. Subsequent studies found support for this contention by establishing a positive correlation between heart rate increase and self-focused attention (Wegner & Giuliano, 1980).

People have been found to distract themselves from negative emotions by shifting their attention in turning negative thoughts and feelings towards pleasant or neutral activities or thoughts (Nolen-Hoeksema, 1991, Nolen-Hoeksema,1987). An attentional shift away from obnoxious stimuli can increase perceived control (Cohen & Weinstein, 1981), which was found to be an effective factor in stress reduction (Averill, 1973). Patients, who adopted avoidant strategies like attention diversion

have been found to show better recovery rates than patients using other coping strategies (Cohen & Lazarus, 1973). High avoiders, however, seemed to be able to reduce a heightened state of arousal (Hook, 1983 in Krohne).

In a similar vein as a negative emotional state associated with high arousal can be positively influenced by attention diversion a negative emotional state associated with low arousal can also be positively influenced by this coping mechanism. Understimulation and boredom may lead an individual to search for ways to increase arousal levels (Berlyne, 1974). It is reported that patients with depressed affect, who turned away their attention from their negative state, from themselves and their feelings consequently felt better (Morrow & Nolen-Hoeksema, 1990). The engagement in an absorbing activity has also been found to reduce self-focused attention, possibly, because it represents a form of distraction (Duval & Wicklund, 1973).

Distraction may also be a helpful device with regard to mood. Negative mood tends to increase negative thoughts, which in return seem to sustain negative mood. Negative mood is linked to negative thoughts about oneself, situations and the future. (Beck, 1967). Distraction may alleviate negative mood and improved mood may help people to view things more optimistically (Locke & Keltner, 1993), hence reducing the stressful negative emotional state.

The most effective distractors were found to be those least reminiscent of the negative state (Wenzlaff, Wegner & Roper, 1988). Distractors reminiscent of the negative state can automatically activate negative thoughts and feelings (Bower, 1981). Consequently, positive thoughts would provide more effective distractors from negative states than negative thoughts (Wenzlaff et al., 1988).

Comparison may open up another avenue for the improvement of mood and the reduction of stressful emotions. People have been found to respond to "downward comparison", which implies standards of comparison that help people view their own situation less negatively (Wills, 1981). Participants in a study investigating the effect of distraction and comparison were mood induced with the imagination of events and then requested to engage in emotional comparison or distraction with mood congruent or incongruent art. Distraction with incongruent art and comparison with congruent art were both found to result in reports of more positive and more satisfied feelings compared to distraction with congruent art and comparison with incongruent art. It was concluded that under certain conditions both distraction and comparison can improve well being (Locke & Keltner, 1993).

Coping in Hospitals

Successful coping in hospital is strongly related to control. Many stressors in an hospital environment pose limitations to or are beyond an individual`s control, impeding coping strategies. Problem focused coping may pose a difficulty if the stress experience is related to the event of hospitalization itself. If the physical condition of an individual makes hospital treatment necessary, then there is little control over this stressful stimulus. Problems related to any of the potential environmental stressors, may be easier to deal with and to control. However, a stress factor like crowdedness may be difficult to avoid in a busy public hospital, where there is limited space and single or double bedrooms are rare. Nevertheless, many hospital rooms have drapes functioning as room dividers. These can be drawn across the room, thus allowing patients to achieve at least a degree of privacy in a multi-bed-room

If noise constitutes a problem, then it may be possible to assert influence on the stressor by shutting doors or windows. Earplugs may also prove an effective way of avoiding the unpleasant stimulation of noise. Furthermore, if the noise is related to talking in the room, for example, then the request for a little silence from room companions or their visitors may solve the problem. Bright lights may be averted by turning the lights off or by using an lightproof blindfold. Aversive smells may be partly averted by opening a window, if possible or by using some airfreshner, if available. At certain stages of hospital admission, however, none of these solutions may constitute a realistic solution, due to physical disability, availability of items, or the nature of the place where the patient resides and the time at which the event occurs.

Emotion-focused coping strategies may constitute more appropriate ways of dealing with the hospital stress experience. Representation-oriented coping, which involves gaining more information about a threatening stimulus, which could for example be the upcoming surgery or other medical procedures and interventions could prove as an effective way of avoiding or reducing stressful emotional reactions. Information about stressors is said to decrease the emotional stress experience by facilitating an individaul`s ability to make more accurate predictions about the nature of a stimulus and by increasing perceived control. The hospitalization may however, impede the access to information, such as books for example. Furthermore, the extent to which information can be verbally conveyed to patients depends on the availability of staff, i.e. doctors or nurses capable of conveying the relevant information. In some situations the occupational pressures of hospital staff may interfere with the time expense required for the passing on of detailed information. Staff may also lack an overall insight into the case, which would prevent them from disclosing relevant information.

In contrast to information gaining strategies, representation-oriented coping can also involve information repression. An individual, who is sick in a home environment and suspects a major health problem may not want to know about the nature of the illness in order to avoid a stressful reaction. In an hospital environment, where doctors on their daily morning round frequently consult about the patients they see next just outside the room, it is, however, difficult to avoid hearing the information being about one`s condition.

Evaluation-oriented coping, which involves changes of intentions and goals on the patient`s side may depend on the situation, the nature of the person, i.e. personality and attitude, and on the nature of the illness. It may be easier or demand less coping resources for some people to adjust to and accept illness as a challenge of life due to their personal disposition and attitude towards life than it is for others. The coping and adjustment to an illness may also be easier, if it does not interfere with the normal continuation of a persons life after recovery than it may be if one`s whole life would have to be reassessed. With some support from family and perhaps counselors evaluation-oriented coping may provide a feasible and workable solution for a patient to cope with stressful emotions. However, it was pointed out earlier that the social support net is weakened by the physical isolation of the patient from the social environment that usually surrounds him/her through being in hospital. Nevertheless, many hospitals offer the services of a Chaplain, functioning as a counselor and providing spiritual support, which may help in evaluation oriented coping.

Attention diversion is another avoidant coping strategy, which can be employed by hospital patients. If the aversive stimulus is noise, then the patient could perhaps distract him/herself by listening to the radio or the TV set, if available. Otherwise listening to a walkman may help to distract a patient without becoming an annoyance to other patients by adding more sounds to the noise.

Visual stimulation in a hospital environment may be of particular interest. Studies on patient behaviour found that viewing or looking around, is one of the most frequently performed activities by hospital patients (Shumaker & Reizenstein, 1984). Furthermore, gaze and changes in looking behaviour have been found to represent one of many coping mechanisms and an instrument of arousal regulation (Hook, 1983). Regarding this knowledge, it appears of importance to devote some attention to the visual stimuli in hospitals and consider their affect on patients as well as all others frequenting the hospital.

Particular emphasis regarding the visual environment may have to be given to patient rooms, as research established that patients generally spend a lot of time in the same room (Collins, 1975). The dislike of certain visual stimuli can motivate avoidance and thus contribute to the maintenance of self-focused attention and higher stress levels (Ulrich, 1983). Some environmental stimuli also appear to have a

positive effect on people under stress. Reading or watching TV may offer a welcome distraction for some patients at certain times if they are available and physical conditions permitting.

With respect to the topic of this thesis, focusing on the visual arts and their potential contribution to health and healing, a picture on the wall may also constitute a welcome distraction by diverting thoughts to a more pleasant stimulus, perhaps activating pleasant memories of nicer environments and of pleasant experiences. However, often there are very little decorative features, potentially functioning as distractors, in a hospital environment.

As this discussion shows, many of the normally available and functional coping mechanisms may be difficult to apply in the event of hospitalization. Many coping strategies aimed at reducing the stress experience may not have the same status or effectiveness in the event of hospitalization as they have in other situations. The multitude of stressors and the restricted means of coping techniques together can lead to an intensified stress experience in hospital patients and consequently hinder the recovery process and general well-being. With respect to the limitations of active coping strategies in the event of hospitalization, the discussion will now focus on how improved environmental factors, gathered under the notion of therapeutic environments may facilitate more positive emotional experiences.

12. Therapeutic environments

Therapeutic environments are described as environments beneficial to psychological well-being which facilitate recovery processes in cases of illness. Conventional hospital architecture, interior design and lay outs are frequently associated with an anti-therapeutic message (Cotton & Geraty, 1984). The idea that certain environments may have a therapeutic effect has a long history. In 1880 Kirkbride suggested that a hospital for the insane should be comfortable and of cheerful appearance, while anything repulsive and prison-like should be avoided, as these first impressions may prove important in the treatment of patients (in Cotton & Geraty, 1984).

However, it has to be kept in mind that patients` perception of hospital environments can be conceived as a rather phenomenological experience as opposed to representing an objective reality. With respect to this aspect it may prove important to consider patient characteristics when focusing on milieu perception (Graham, Friedman, Paolino & Lilly, 1974). Some research into the relationship of hospital milieu and treatment effectiveness found no positive correlation between the two factors. Nevertheless, it appears that a specifically designed therapeutic milieu can help to make hospitalization a more pleasant experience (Graham et al., 1974).

Hospitals represent institutional health care provision and institutions are often associated with an atmosphere of professional competence, but also with "emotionally cold" depersonalized care (Shumaker & Reizenstein, 1984). The environment conveys a symbolic meaning for the user through ways of identity and feelings and aesthetic experience (Shumaker & Reizenstein, 1984, Gesler, 1992, Rose, 1986). It has been suggested that a process of mood contagion emanates from places and things (Redl & Wineman, 1952). A sense of place is found to be of great importance in the healing process (Gesler). Places with a positive image that inspire hope for example can be stress reducing and may assist both physical and spiritual healing (Gesler, 1992).

The image of a hospital can be improved if the hospital design reflects respect for its users by meeting their needs. Environments that do not meet the patient`s and associated hospital user`s needs facilitate stress experiences and are more likely to elicit feelings of anger, frustration, passivity, helplessness or depression. Thus it appears that it should be in the hospital boards interest to provide a user friendly environmental atmosphere in order to enhance recovery through the means of more positive emotional states. Hospital environments that are designed to enable their users to control as much as possible of what can be controlled by them, may help in stress reduction and foster faster recovery (Shumaker & Reizenstein, 1984).

Comfort and convenience are of significance for hospital users. For example, easy access to phones and rest-rooms as well as stimulating features like water fountains, plants, comfortable chairs, agreeable lighting and so forth can communicate that the user is important and comfort the user (Shumaker & Reizenstein, 1984). This is particularly important with view to hospital patients being more likely to experience physical discomfort than healthy people. A comfortable environment will enable the patient to relax better and relaxation has been shown as an important feature in coping with stress. A window with a view, plants, special lighting, and other furnishings, such as curtains and wall hangings have been found to assert a positive affect on people under stress (Cotton & Geraty, 1984, Shumaker & Reizenstein, 1984, Wilson, 1972, Ulrich, 1984, Rose, 1986).

There seems to be support for the contention that visual stimuli can function as an emotion regulator (Gesler, 1992, Ulrich, 1983, Taylor, 1990, Hook, 1983). An optimally stimulating visual environment may assert positive influence on excessively high or low arousal levels and may thus foster well-being (Bernard & Krupat, 1994). Attractive visuals and most natural views have been found to elicit positive affects in people and unthreatening visuals have been found to be arousal reducing and to produce more positive emotional reactions (Ulrich, 1979). Support comes from studies concerned with the effect of different visual environments on people`s attention. At the presentation of visual stimuli with similar information rate, views of

vegetation and especially water seemed to evoke more interest and gain more attention than views of urban environments (Ulrich, 1979, 1981).

Certain interesting or novel stimuli which capture a stressed individual`s attention may help through the process of distraction, diverting stressful thoughts away from oneself and one`s situation and thus foster restoration from anxiety or fear (Ulrich, 1984). Hospital patients looking at the scene of a deciduous tree from their bed were found to receive more positive comments with regard to patient behaviour from nurses, to have shorter post-operative hospital stays, to have taken fewer analgesics and to account for slightly lower scores of post-surgical complications compared to patients who looked at a brick-wall. Consequently it is suggested that natural scenes may have a therapeutic influence on people (Ulrich, 1984).

Paint schemes have also been given attention with regard to their possible emotional association with moods. Some pastel colours like muddy greens, greys and browns have been termed colours with institutional connotations and should be avoided in therapeutic environments. With respect to attention diversion from stressful stimuli, a range of diverse colours designed to create definite contrasts can raise people`s interest and elicit more positive feelings (Cotton & Geraty, 1984).

The notion that colours may affect emotional states is not new. Goethe (1988, 4th Ed.) suggested in his book about "Farbenlehre" that every colour leaves an impression on a person (Leijenhielm, 1967). Colour associations to certain emotional states originated from references to features in the natural environment. Blue was associated with the oceans and the sky and suggested a state of calmness and restfulness. Red was associated with fire, indicating restlessness and instability. Green was associated with the abundance of growth in nature, indicating quietude and restfulness. Yellow was associated with the sun, standing for stimulation and excitement (Meier, 1966).

More recent research reports that colours relate to emotions on the basis of brightness and saturation being linked to pleasure (Mehrabian & Russell, 1974). So called warm colours are accredited with mood changes from negative affect to a calmer more positive affect (Cotton & Geraty, 1984). With respect to hues, the following order of the colours blue, green purple, red and yellow indicates the descending rank of pleasantness. The description of colour warmth or coldness is correlated to arousal patterns. In descending order red is ranked as warmest colour producing strongest arousal responses, followed by orange, yellow, violet, blue and green with green being the coldest colour. Light intensity has also been correlated to arousal, whereby higher intensity is associated with greater arousal.

Interest also plays an important role in the display of decorative features like pictorial cloth hangings that can capture one`s attention. Decorative features, like paintings for example, may encourage imagination and defeat boredom, which is

traditionally overlooked (Rose, 1986). Additionally specific motives like changing weather pattern for example, are thought to be capable of conveying the subtle message of hope for change (Cotton & Geraty, 1984).

Considerations of maintenance, utility and costs will have to play a decisive role in the design and refurbishing of hospitals into more therapeutic environments (Cotton & Geraty, 1984). This appears particularly important with respect to genuine artworks, which often can be obtained only at a high price, unless they are being donated by people with an interest in this domain.

Art

Art is an integral part of life. Artistic expression has been traced back to the earliest beginnings of human existence (Meier, 1966). Lev Vygotsky (1971) described art as "a social technique of emotion, a tool of society, which brings the most intimate and personal aspects of one`s being into the circle social life (p.249)." Artistic creativity involves emotions as just about any human activity does, only that they play a more dominant role in art (Vygotsky, 1971).

Meier suggests that painting was motivated by human emotions of fear and hunger, which were related to a life ruled by uncertainty. He argues that the engagement in art as well as religion could provide means to achieve "peace of mind" (p.8), which may be interpreted as the achievement of an emotional tension relief. The creation of an artwork should thus not be regarded as an attempt to reproduce a realistic copy of any motive, but rather should be regarded as an emotional effort to convey a deep personal, perhaps religious feeling. The culmination of religious artworks in the middle ages suggests that art and religion have an intimate involvement and may facilitate each other (Meier, 1966).

Art has to be regarded as an effort that involves the artist`s emotion prior and during its creation (Sankowski, 1976). The contention that art is made or sought because it gives pleasure, which is conceived as an emotional state (Arnheim, 1972), suggests that art may potentially function as an emotion regulator in hospital stress experience. The proposed high input of emotion in the creation of an artwork leads to the hypothesis that artworks may be particularly affective in counterbalancing negative emotional experiences with view to emotional contagion and distraction. However, not all art is created with view to elicit feelings of pleasure. The artist may derive a certain amount of emotional relief or pleasure during the creation of art, but this is not to say that the end product elicits positive feelings in the perceiver.

The creation of an artwork may be guided by a variety of factors. The artist may create an artwork with the intention to evoke certain emotional reactions, or the artist may intend to depict a certain emotional state, or the artist may also express

personally felt emotions. Essentially art represents an expression of emotion, whereby an artwork can be conceived as sad, cheerful and so forth (Sankowski, 1976). However, it is cautioned that this view does not imply that the aspect of cheerfulness for example is an inevitable emotion of the perceiver of the art stimulus or that the artist was in that particular emotional state at the time of creation.. Much rather does this view propose that a particular visual stimulus can reflect certain emotional or mood states (Sankowski, 1976), which do not necessarily adhere to those of the perceiver. Emotions in the perceiver are said to be generated by the content of the artwork (Vygotsky, 1971), but the nature of emotional responses is determined by the wide range of factors described earlier

The emotional response to the encounter with art can be described as aesthetic experience The aesthetic pleasure or aesthetic emotion is thought to be analogous to a sense of well-being (Spitz, 1982). Pleasurable experiences are positively reinforcing. Both pleasure and arousal are said to mediate approach and avoidance behaviour. Moderate levels of arousal as elicited by visual stimuli of artworks, for example, relate to physical approach, preference, liking or positive attitudes, exploration, performance and so forth (Mehrabian & Russell, 1974).

13. The Hypothesis

Guided by the principle of aesthetic pleasure and its proposed affect on a person`s cognitive, behavioural and physiological responses, the present research aimed at establishing the potential of visual artworks, i.e. pictures or paintings to evoke an emotional counteraction to stressful experiences. It was hypothesized that artworks rated as pleasant and as representing a positive mood state could potentially counteract stress experiences related to illness, medical intervention and hospitalization when displayed in a hospital environment.

The direct exposure of hospital patients to pleasant artworks was anticipated to elicit a positive emotional response. This positive emotional response was expected to reflect in a number of questionnaires, designed to assess patients`s emotional state. The comparison of patients, who were not exposed to artworks, with hospital patients, who were exposed to artworks, was expected to result in differences in patients`s emotional state. Under equal conditions, except for the presence of paintings, the emotional state of the patients in the art condition was hypothesized to be more positive. The research involved two preliminary laboratory experiments conducted with students at the University of Canterbury and one experiment at Burwood Hospital, both in Christchurch, New Zealand. The experiment at Burwood Hospital took place in a short term orthopaedic ward conducting surgery such as hip- and joint replacements.

14. General introduction to the experiments

The main objective of the research was to compare the emotional responses of patients, or university students in the preliminary studies, in a stressful situation in an environment with bare walls to those in an environment decorated with pictures. The study aimed at establishing, whether visual artworks would positively influence and counterbalance a person`s emotional reaction in stressful situations. The preliminary research, i.e. experiment one and two, was also designed to consider the possible variance in the effect of different artworks. It was suspected that variations in the nature of the artwork, like colour schemes and content could elicit different emotional experiences. Consequently the study aimed at identifying which type of artwork would have the most beneficial effect on a person`s emotional state.

The two major categories of paintings to be used in this research were distinguished as pleasant art or art that would reflect a positive mood, and provocative art or art that would reflect a negative mood. The pleasant art category would then be subdivided into two further categories, one forming the pleasant art condition and the other the scenery art condition. The former constituted of bright, lively and colourful compositions depicting flower themes and nature themes, and the latter of paintings in a more subtle colour composition showing shades of green, blue and light browns depicting landscapes. These two conditions were in stark contrast to the fairly dark coloured provocative art condition in predominantly brown shades, depicting mostly human beings, reflecting a distressed emotional state.

15. Pilot Test

A pilot test was conducted in order to established two distinct groups of paintings for the two opposing experimental conditions of pleasant versus provocative artworks. In all, twenty randomly selected students at the University of Canterbury were asked to rate twenty-one photographs of paintings. Eleven of these photographs were of paintings by the same artist and were judged to represent provocative artwork, perhaps reflecting a negative mood state. The other ten photographs were of paintings currently exhibited in the Canterbury Public Hospital in the Oncology department and were judged to represent pleasant artworks reflecting a positive mood state.

The twenty participants were divided into two groups of ten. The first group of ten participants were asked to sort the twenty-one randomly organized photographs into two piles distinguishing pleasant from provocative paintings. The second group of ten participants were asked to sort the randomly organized twenty-one photographs into two piles distinguishing paintings reflecting positive from those

reflecting negative mood. The photographs were randomly numbered on the back and after each participant had rated them, the numbers for each of the two conditions were recorded.

The subsequent analysis showed that the ten highest rating photographs for the provocative art and negative mood condition were identical and in very similar rank order. The two scores of the ten matching pairs of photographs were added and the four highest scores determined the paintings used in the provocative or negative mood condition. Similarly, the two scores of the remaining eleven matching pairs for the counter condition were added. The six highest scores of this condition determined the paintings to be used in the pleasant or positive mood condition.

CHAPTER II

EXPERIMENT ONE - Music and emotion

1. Introduction

The main focus in this experiment was on the measurement of heart rate as an indicator of physiological arousal resulting from a reaction to and possible interaction with stressors and visual environmental stimuli.

The experiment was designed to investigate the effect of various visual stimuli on an individual`s physiological measures in a given environment on the experience of stress. The underlying assumptions of this research was that the walls of hospital environments are often bare, lacking positive stimulation and thus constituting an unfavourable visual stimulus for patients already prone to anxiety and stress experiences (Bernard & Krupat, 1994, Veitch & Arkkelin, 1995). It was decided to simulate a hospital experience by choosing to conduct the experiment a small windowless room stripped of as many visual stimuli as possible and compare its effect on particpants` arousal levels during the experience of stress with three other conditions, offering a variety of visual stimuli.

The stress induction was based on noise functioning as a stressor (Topf, 1984, 1985, Glass & Singer, 1972, Sorenson & Schultz, 1968). Participants had to listen to a tape with a piece of music, which had been recorded with a very high degree of distortion, while being on their own in the experimental room. The tape was clear only at the beginning and at occasional very short intervals. Otherwise there were mostly annoying noises. As well as the unpleasant noise of the tape itself, the unfulfilled expectations of listening to a piece of undisturbed music were expected to lead to frustration, which would act as an additional stressor (Bernard & Krupat, 1994).

The perceived pressure to perform as expected, i.e. filling in the questionnaire, was predicted to constitute yet another stressor (Bernard & Krupat, 1994). Participants were being slightly deceived in being made to believe that the objective of the research was to investigate their emotional experience to the piece of music. The participants` realization that the "faulty" tape could possibly prevent them from completing the questionnaire could add to further stress. Lastly, there was a possibility that the participants` inability to fix the problem could result in a feeling of perceived loss of control and as such, would represent another source of stress (Volicer & Volicer, 1978).

The decision to take heart rate measurements as an indicator of physiological arousal resulting from a reaction to and possible interaction with stressors and visual

environmental stimuli was based three findings, discussed earlier. First, the presentation of an aversive stimulus is likely to elicit an emotional stress response in an individual, and is amongst other physiological changes indicated by an increase in heart rate (Cohen, Kessler & Gordon, 1995, Selye, 1979, Volicer & Volicer, 1978). Second, emotional arousal is a major component in the perception of environmental stimuli (Mehrabian & Russell, 1974). And third, a pleasant environmental stimulus may elicit a positive emotional response, a so called relaxation response (Benson, 1975, Ulrich, 1984c). Any stimulus capable of eliciting positive emotional responses is a potential emotion regulator and can assist in counterbalancing the stress experience (Gesler, 1992, Ulrich, 1978, 1983, Taylor, 1990, Hook, 1983).

The measurement of stress on the basis of self-reports about subjective feelings, attitudes and perceptions by people could be subject to biasing influences such as demand characteristics and therefore would not necessarily produce the most reliable data (Veitch & Arkkelin, 1995). The measurement of physiological changes in arousal as an indicator of stress levels seemed to offer the advantages of being fairly reliable and objective (Baum, Grunberg, & Singer, 1982, Cacioppo, Petty & Marshall-Goodell, 1985). However, it had to be considered that the monitoring of physiological changes itself could be experienced as stressful and could thus have led to an increase in arousal levels (Bernard & Krupat, 1994). Similarly, the same effect was likely to occur as a result of self-report procedures and in this respect the physiological measures seemed to maintain their advantage and had therefore been given preference in this research.

As a precaution and a possible means of avoiding a physiological reaction to the testing itself, the physiological measure was taken twice, once before and once after stress induction. This was aimed at ensuring that participants would not experience the measurement as a novelty, thus minimizing any possible physiological reaction towards the procedure, as novel stimuli have been found to elicit stress responses in certain situations (Veitch & Arkkelin, 1995, Izard, 1991) As a result the physiological data obtained were thought to be more likely to be the result of the stress induction and environment interaction rather than being influenced by an emotional reaction to the measurement itself. Furthermore, the first measurement provided a baseline for the subsequent analysis. The baseline measurement served as a manipulation check and enabled the experimenter to establish, whether there were differences in the heart rate before and after the stress induction and whether the stress induction was successful.

This assumed stress experience was expected to activate coping strategies (Cohen et al., 1995). Of specific interest for this experiment was the looking behaviour as an emotion regulating mechanism (Hook, 1983). this suggests the avoidant technique of attention diversion and distraction, believed to function as a

potential emotion regulator (Taylor, 1990). People distract themselves from negative emotions by turning their thoughts toward more pleasant or neutral stimuli (Nolen-Hoeksema, 1991, Nolen-Hoeksema,1987).

With regard to the different picture conditions presented in this research, it should be pointed out, that distractors reminiscent of a negative emotional state could automatically prime negative thoughts and feelings, thus maintaining a negative emotional state (Bower, 1981, Strauman & Higgins 1987). It was hypothesized that the provocative art condition would constitute a stimulus reminiscent of the negative emotional state and would thus not represent an effective condition for counterbalancing a stressful emotional response and may even elevate the negative experience. The most effective distractors were found to be those least reminiscent of the negative emotional state (Wenzlaff, Wegner & Roper, 1988). This argument suggests that attractive and pleasant pictures reflecting a positive emotional state would be most suitable to counteract stressful experiences.

Attractive views were found to elicit interest and attention, potentially blocking or reducing negative stressful thoughts and fostering physiological restoration (Ulrich, 1979). Unthreatening natural views were associated with arousal reduction and tended to elicit more positively toned emotional reactions (Ulrich, 1979, 1983). With respect to this finding it was hypothesized that the scenery art condition would counteract a probable negative emotional experience and perhaps produce lower arousal and stress levels than the other conditions. The colourful art condition, rated as pleasant, was expected to attract attention and thus reduce the impact of the stressful noise stimulus. However, bright, vibrant colours have an arousing affect and the status of this condition in counterbalancing physical arousal and the stress experience was ambiguous.

In order to complement the heart rate measure and to gain more insight into the emotional responses and into participants` perception of the situation a questionnaire was also administered. This questionnaire included questions about how stressful listening to the tape and the experiment was perceived to be. These were answered on a seven point Lickert scale. Further, participants were asked to list two activities performed during the listening, and to indicate whether they took notice of their visual environment, as well as requesting them to describe the environment. They were also asked, whether they had an interest in art, how they would describe the artworks, and whether they liked the artworks (these questions only applied to the art conditions). The participants were asked to indicate their gender for statistical purposes. In summary, it was thought that the completion of this questionnaire would provide valuable information in the later analysis of the data.

2. Design

The experiment was a single factor design between participants. Each of the four conditions (1) pleasant mixed art condition - a mixture of four colourful floral motives and two scenery paintings, 2) scenery art condition - two scenery and landscape paintings, 3) provocative art condition - four paintings, depicting human beings and parts of human beings, 4) bare wall condition) represented the independent variable and the arousal level as well as the stress ratings represented the dependent variables.

3. Method

Participants

The participants were primarily first year undergraduate students of psychology at the University of Canterbury, recruited from all of the compulsory laboratory classes. Some participants were students recruited from the University campus. The majority of participants were female. In experiment one eighty students were tested, sixty eight percent female and thirty two percent male participants. Participants varied in age between 18 - 45 years. The participation was voluntary and all participants were informed that they could withdraw from the experiment at any time, if they desired to do so.

Materials

1) A small windowless room (approx. 9 sqm) furnished with a desk and two chairs and with as little as possible visual stimulation. The experimental room had a waist-height bench with storage cupboards underneath alongside two walls. The bench was kept empty and a bookshelf on the wall was covered with a cream coloured cloth in order to blend it into the surroundings, which were also cream coloured. Similarly the wooden desk was covered with a cream coloured cloth to prevent the participants reading the graffiti on it.
2) A portable tape recorder.
3) An audio tape with one piece of distorted music. The song used in this experiment was a rock song titled "You might think I'm crazy" by the band "The Cars". It was recorded from the radio and while it was playing the tuner was constantly turned, so that the effect of distortion was achieved. The song lasted for about three minutes and in intervals the song was tuned properly for about ten seconds. At the beginning of the recording the song was tuned

properly to give the impression that the research is really what it was said to be. It was anticipated that the distortions would be perceived to have occurred accidentally as opposed to being the result of intentional manipulation. The end of the song had been left unrecognizable, so that participants` last impression would be that of noise rather than music. Ideally, the participants should have believed the experimenter to be innocent of the nature of the recording.

4) Genuine artworks of varying size - the largest measured 1.40 m x 0.80 m and the smallest 0.50 m x 0.50 m. The artworks were paintings, some of them in oil, some in watercolours, some were on canvas or sackcloth and some were on paper. One of the provocative artworks was described as mixed media and featured lead, brass and plastic netting. natural wood frames from driftwood or old tree stumps.

a) Six pleasant artworks - three of them depicting flowers in bright or pastel colours, two landscapes, primarily green and brown tones, depicting views of Canterbury landscapes and countrysides and a colourful cottage garden. These artworks are currently being displayed in the Canterbury Public Hospital and come from various artists.

b) Four provocative artworks - depicting a distorted and distressed face, a picture of a brain on sackcloth framed with aluminum accompanied by a written excerpt from a medical book, a figure on yellow background, turning away from a big black space and a figure huddled up with written comment concerned with the fragility of man. These artworks were pieces of the private collection of the artist Scott Flanagan of Christchurch.

6) An information sheet about the experiment to present to the participants

7) A heart rate measuring instrument or a watch with a second hand.

8) A recording sheet

9) A questionnaire. The questionnaire in this experiment asked participants a) to what extent they perceived the experience of listening to the tape to be stressful and b) to what extent they perceived the experiment as stressful (both to be answered on a seven-point Lickert scale; 1 = not at all stressful, 7 = extremely stressful). Further questions asked participants c) to list two things they did while they were listening, d) whether they took notice of their visual environment and e) how they would describe it, f) whether they were interested in art, g) how they would describe the artworks and h) whether they liked the artworks. The last three questions would apply to the art conditions only. Participants were also asked i) to indicate their gender (female/male).

Procedure

Participants were asked in their compulsory laboratory class if they would volunteer to participate in an experiment concerning the emotional experience of music, which would take about ten minutes of their time. A list with a timetable, defining twenty minute time slots throughout the day was handed out. Participants could then write their name and phone number in any suitable time slot and tear off a little reminder note to keep. This method enabled the experimenter to test participants one at a time throughout the day without having more than one arrive at the same time.

One participant at a time was led into the experimental room representing one of the four conditions (pleasant artworks, scenery, provocative artworks, bare walls). They were invited to seat themselves at the desk and were made to wait for about one minute while the experimenter fetched the information sheet and the recording sheet for the heart rate measures. The one minute time lapse before the experimenter`s return was designed to give participants the opportunity to look around and familiarize themselves with the physical environment.

At the return of the experimenter the participants were handed an information sheet to read. It informed them about the duration and the nature of the experiment, explaining that they would have to listen to one piece of music on a tape while being on their own in the room in order to ensure the undisturbed experience of the music. Participants were informed that the experiment involved completing a questionnaire as well as having their heart rate measurement taken once before and once after the listening experience. Furthermore, the information sheet emphasized the participants` right to terminate the experiment and withdraw any given information at any time as well as it conveyed the necessity to consent to absolute secrecy about the experiment until the conclusion of the research in order to maintain the continuation of uncontaminated data collection.

Lastly, participants were informed that the results of the experiment may be published, but that everything possible was done to ensure anonymity. The participants were given a consent form to sign if all the terms and conditions were understood and accepted. After the participants had read the information and signed the consent form, the experimenter measured the participants` heart rate, took a note of it and explained the proper use of the tape recorder, which was set up to go at the push of a button. The experimenter left the room with the comment that she would return at the end of the tape with the questionnaire. The information sheet was removed from the desk in order to avoid tempting participants into reading it while they were listening to the tape.

The experimenter re-entered the room about ten seconds after the tape had finished. Participants` comments about the nature of the tape were responded to in a very subtle avoiding manner, i.e. a slight acknowledgment of their comment with a nod of the head, while the second heart rate measurement was taken as immediately as possible. After having taken the heart rate measure participants were given the questionnaire and were assured that all concerns would be responded to after the completion of the questionnaire. Participants were then left alone in the room for about three to four minutes while filling in the questionnaire. The experimenter returned at the completion of the questionnaire, debriefed participants, explaining the true nature of the experiment. All participants were thanked very much for their participation and help.

The same method was applied throughout all conditions, with the only difference being the various environmental stimuli and the questionnaire for the bare wall condition, which had the art questions omitted.

4. Results

Descriptive Data

For both experiments the descriptive data were sorted into as many categories as required in order to gain some information about the contents and the frequency of these recordings. For example the recorded activities were put into categories like a) looked at the pictures, b) looked at other things, c) mental activities - thinking, wondering, planning, d) physical activities - scratching ones head, writing, getting up. For experiment one a category referring to the participants` reaction to the music, i.e. tapping a foot or fingers, nodding the head and so forth, was created as well as a category that dealt with participants` reaction towards the "faulty" tape, i.e. looked at the recorder, wiggled the wires, inspected the tape and so forth. Data referring to the description of the environment or art could be sorted under categories such as a) interest or stimulation, b) technical terms - creative, well done, c) content description - floral, scenic, d) mental effect - confusing, meaningful, irritating, or e) physical effect - calming, relaxing, arousing. The multitude of descriptive data were later used to explain some findings relating to the numerative data.

Coding of data

The data providing yes/no or female/male answers were dummy-coded, whereby "yes" was transformed into "1" and "no" into "2" and "female" into "1" and "male" into "2".

Analysis of variance (ANOVA)

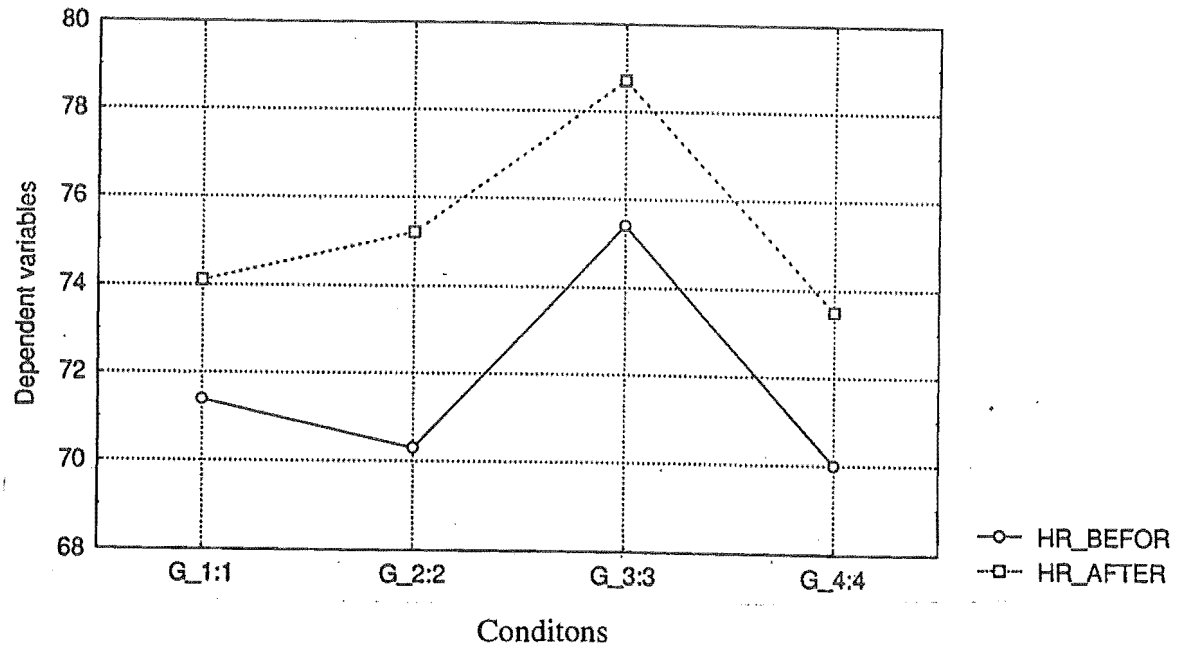
It was of particular interest in this experiment to see whether there were any differences in the increase in arousal levels between the different conditions, i.e. whether the stress induction would be more or less likely to cause a greater or lesser increase in arousal levels in any particular condition.

A manipulation check for the stress induction, employing an analysis of variance (ANOVA), comparing the heart rate measures before and after stress induction across all conditions showed a significant difference ($F = 6.45$, $p < .0000$) in the measures before and after the stress induction and indicated that the stress induction was successful. A comparison between the different conditions revealed no significant differences in the increase in arousal levels, as expressed by increased heart rate between any of the conditions (graph 1).

Graph 1: Manipulation check

The comparison of rise in heart rate from before to after stress induction across all conditions.

G 1.1 = pleas. art, G 2.2 = scenery art, G 3.3 = bare wall, G 4.4 = provoc. art

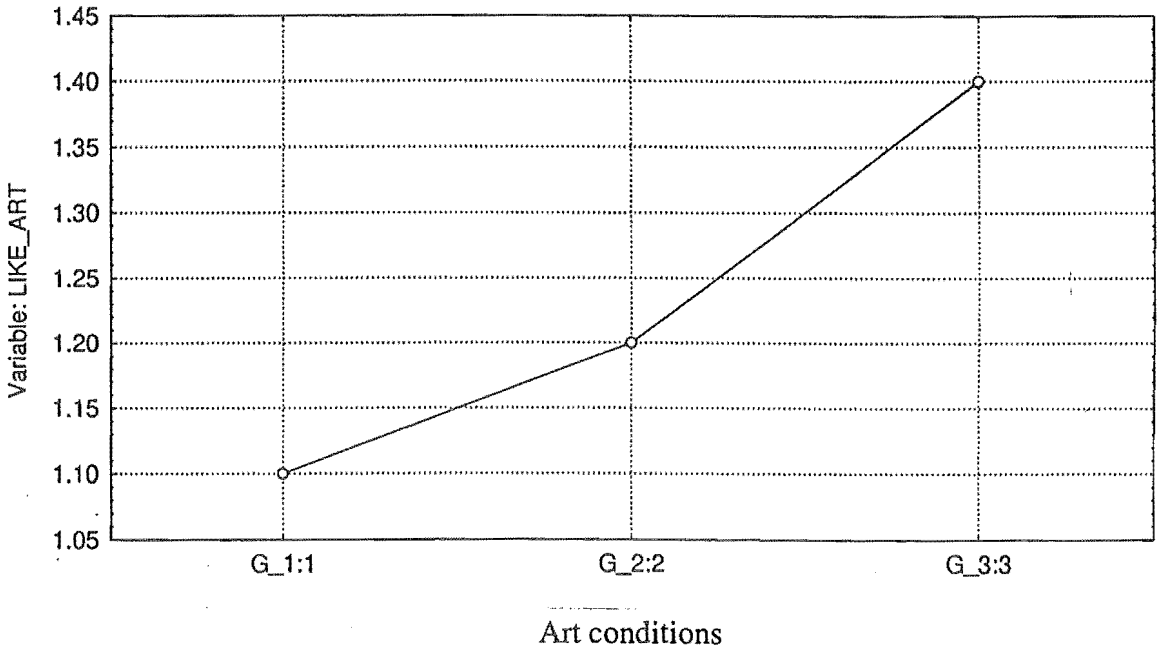


Graph 1 further shows that the bare wall condition was associated with the highest arousal levels after the stress induction, while the other picture conditions showed fairly similar lower, but not significantly different levels of arousal. It has to be noted, however, that the participants in the bare wall condition started off with a higher arousal level.

Across all conditions 91.2 percent of participants reported noticing their visual environment. Across the three art conditions 92. 8 percent of participants reported they were interested in art. An analysis of variance across all art conditions comparing the liking of art did not result in a significant difference. However, a planned comparison between the pleasant and the provocative art condition showed a significant difference $F = 5.234694$, $p < .025870$ (graph 2). It can be seen on graph 2 that participants liked the pictures in the pleasant art condition most, followed by the scenery art condition and lastly the provocative art condition, which was least liked.

Graph 2: The liking of art across all art conditions

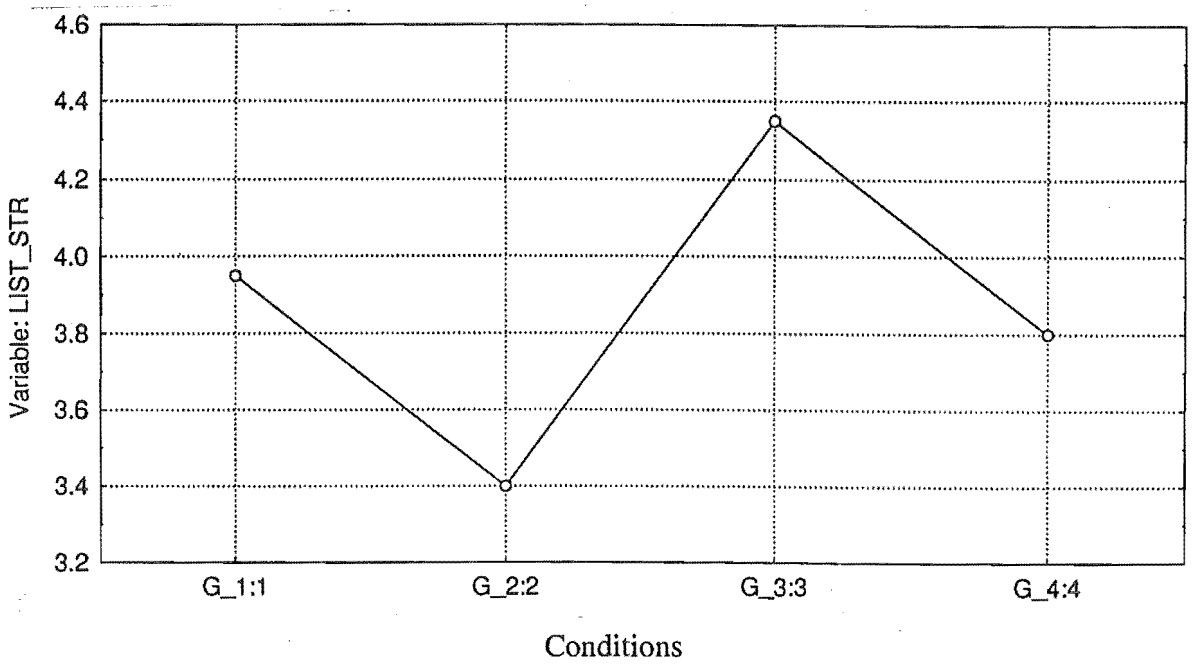
G 1.1 = pleas. art, G 2.2 = scenery, G 3.3 = provoc. art



Of further interest in this experiment were the ratings of listening and experimental stress, as it was thought that these may vary between the different conditions. The analysis of variance comparing listening stress across all four conditions did not show a significant result (graph 3). Graph 3 shows that the listening stress recordings were highest in the bare wall condition. The pleasant art condition showed the highest listening stress rating of all three art conditions, followed closely by the provocative art condition at an intermediate level. The lowest listening stress ratings across the art condition and overall was recorded for the scenery art condition.

Graph 3: Listening stress across all conditions

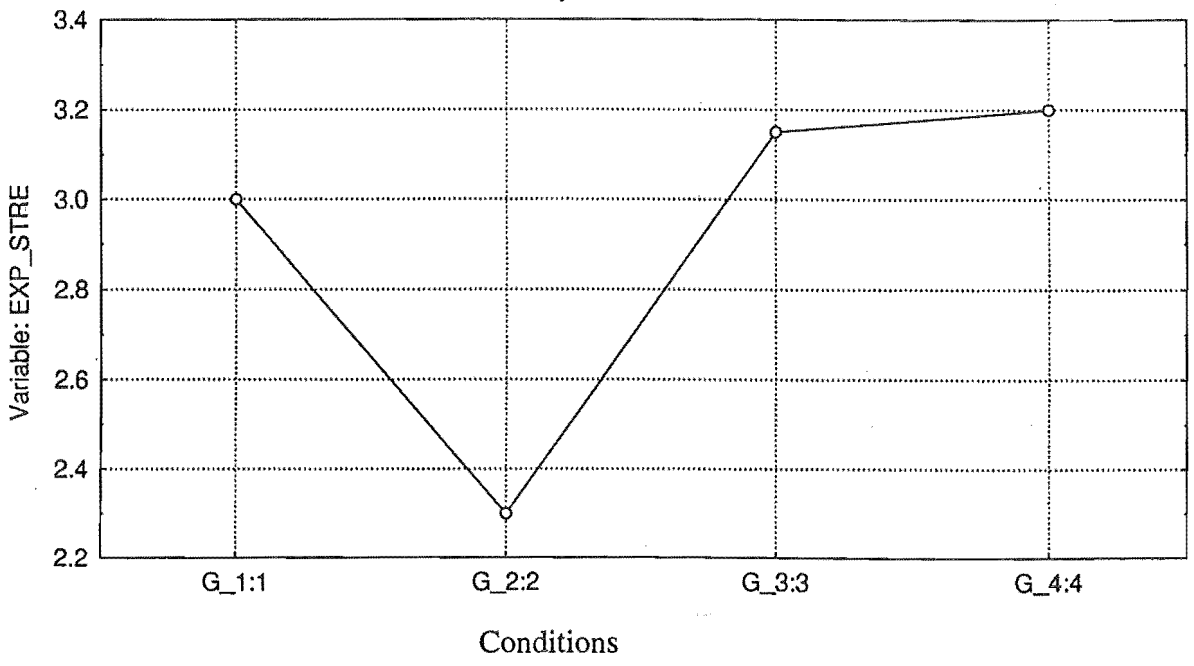
G 1.1 = pleas. art, G 2.2 = scenery art, G 3.3 = bare wall, G 4.4 = provoc. art



The analysis of variance comparing experimental stress across all conditions showed no significant differences (graph 4). Although not significantly different, participants in the scenery condition reported the lowest experimental stress level, while participants in the other conditions reported similarly high levels of experimental stress (graph 4).

Graph 4: The comparison of experimental stress levels across all conditions.

G 1.1 = pleas. art, G 2.2 = scenery art, G 3.3 = bare wall, G 4.4 = provoc. art



A correlational analysis showed that listening stress was positively correlated with experimental stress at $r = .55$, $p<.00000$, i. e. the higher the scores on the listening stress scale, the higher the scores on the experimental stress scale.

In summary, the stress induction was successful, as participants` heart rate increased significantly with the exposure to the music/noise tape. However, no significant differences in the increase of heart rate as a result of the stress induction between the various conditions were found. The finding of the heart rate measures being highest in the bare wall condition was not significant, after considering the baseline recordings, which were initially higher in this condition.

Overall, more than ninety percent of participants reported noticing their visual environment and across the art conditions over ninety percent reported that they had a general interest in art. Across the three art conditions, a significant difference in their liking of the artworks was found between participants in the provocative and in the pleasant art condition, whereby they tended to dislike the provocative art most and favoured the pleasant art best. The ANOVA analysis of listening and experimental stress across all conditions showed the most favourable results for the scenery art condition, with the lowest listening and experimental stress ratings, which were found to be positively correlated. The bare wall condition was associated with the most unfavourable results, showing high listening and experimental stress ratings, while the other two art conditions showed similar high stress ratings.

5. Discussion

Experiment one was based on the notion that individual stress experiences can be measured on the basis of changes in the physiology. It was argued that stressful experiences are associated with changes in heart rate and arousal levels and that such measures could indicate the magnitude of the stressful event (Selye, 1979, Folkman & Lazarus, 1984). Noise was earlier identified as a stressor and increases in noise had been associated with an increase in arousal levels (Evans & Cohen, 1987, Topf, 1984). It was expected that the exposure to the music/noise tape would be perceived as stressful and would raise arousal levels. This heightened arousal was to be regarded as an indication of participants` stress experience. The results showed that in all four conditions the heart rate measures went up, which appeared to support the notion that the stress induction was successful.

Furthermore, the experiment was based on the theory that certain environmental stimuli can act either as additional stressors or as moderators to a stressful experience (Gesler, 1992, Ulrich 1983, 1984, Taylor, 1990, Hook, 1983). Attractive visual stimuli were suggested as having an arousal reducing effect and as being associated with more positive emotional reactions (Ulrich, 1979, 1983).

Considering this observation, it would have been expected to find differences in the increase of the heart rate measures in the different conditions. However, an analysis of variance did not result in significant differences of heart rate increase between any of the four conditions. This suggests that the different environments did not result in any differences in physiological stress responses to the stress induction. A subjective measure of stress, to be rated on a seven point Lickert scale was also presented to participants and will be discussed in due course.

The arousal levels in the bare wall condition were comparatively higher than in the other conditions. The simple explanation for this finding is that most of the participants in the pleasant art and the scenery condition were recruited by writing their name in a list, providing specific time slots for the experiment, which was passed around in class. These participants knew when they were going to take part in the research and they could take their time getting to the experimental room. Participants in the bare wall condition, however, were mostly recruited from the University Campus just a few minutes before the research. The research room was situated on the fourth floor of the Psychology building and on the day of testing participants for the bare wall condition, the elevator was constantly occupied by furniture removal people and so most of the participants had to walk upstairs four floors. This would account for the higher starting arousal level in this condition and the consequently higher arousal level after the stress induction.

To summarize the findings about the heart rate measurements, the exposure to reasonably loud unpleasant sounds contributed to an increase in participants` heart rate. The different visual environments did not seem to counteract the physiological changes or stress measurements, which occurred as a result of the exposure to the music/noise at a similar rate throughout all conditions. This development cannot be accredited to a lack of attention to the visual environment, as over ninety percent of participants reported to have taken notice of their visual environment.

Over ninety percent of the participants reported an interest in art, which would suggest that they were most likely to have paid attention to the artworks in the room. The descriptive data lend some support to this suggestion, as they revealed that participants frequently reported either looking around or looking at the pictures, when applicable. This seems to lend support Evans & Cohen`s (1987) finding that looking around is one of the most dominant behaviours exhibited by patients in hospital environments.

It was found that participants liked the paintings in the pleasant art condition significantly more than the paintings in the provocative art condition. This finding would be regarded as being coherent with the pilot test ratings of the pictures by students. Paintings rated as pleasant and as reflecting positive mood made up the pleasant art condition. These paintings were by a variety of artists and of different

styles making them overall more likely to appeal to a wider range of people, which consequently resulted in higher liking ratings. Paintings rated as provocative and as reflecting negative mood made up the provocative art condition. These paintings were all by the same artist and of similar style and were anticipated to appeal to a smaller range of people, which consequently resulted in a lower liking rating.

The implication of this finding is that paintings intended for the improvement of hospital environments should preferably be such that they could appeal to a wide range of people. Paintings which are too specific in their content, as for example expressions of political, ethical, social or religious issues may not be as suitable, because of a higher likelihood of these paintings being disliked by more patients. A dislike could elicit negative emotional reactions, which are sought to be avoided (Ulrich, 1973).

In addition to the physiological stress measures, the research provided two subjective measures of listening and experimental stress, which involved having participants` evaluate their own stress level on a seven point Lickert scale. No significant differences in listening stress ratings were found between the four conditions, but graph 3 clearly shows a visible difference between the scenery and the bare wall condition. Listening stress was lowest in the scenery art condition and highest in the bare wall condition. The pleasant art and provocative art conditions showed similarly high levels of listening stress.

Although the different visual environments did not seem to affect participants` arousal and physiological stress measurements, it appears that the visual stimuli had an effect on subjective stress measures. The scenery pictures appeared to have had a moderating effect on individual stress experiences by asserting a relaxing and calming affect on participants. Relaxation, it may be recalled, had been identified as an effective tool to combat stress experiences (Benson 1975, Cragan & Deffenbacher, 1984, Gordon, 1990). However, one of the main effects of relaxation is the influence on and reduction of arousal levels, for which the data provide no evidence in this case. It is therefore suggested, that the relaxation affect of the room and paintings may have influenced participants` mood positively.

In an earlier discussion positive mood was related to reduced stress experiences (Booth-Kewley & Friedman, 1987, Scheier & Carver, 1985). A positive emotional state associated with the mood reflected by the paintings and the room and with the resulting relaxation may have led participants to perceive the music/noise tape as less stressful, which would account for the lowest listening stress rating in this condition. The descriptive data lend some support to this suggestion, as they reveal descriptions of the exhibited paintings as peaceful, relaxing, tranquil, soothing, serene, restful, and calming. Similarly, the descriptions of the experimental room in this condition frequently refer to the room as being quiet, calm, peaceful and pleasant.

The finding that the visual stimuli like certain artworks appear to have the potential to create a relaxing atmosphere in a room has important implications for the benefit of art in hospital environments. The present results seem to support the contention that relaxation can counteract stressful experiences. Firstly, the patients themselves may feel more relaxed and less stressed by the events. Secondly, it had been suggested that emotional contagion can play a role in patients` stress experience.

The emotional atmosphere created by other people or an environment can assert a strong influence on patients (Hammer, Jones, Lyons, Sixsmith, Afficiando, 1985, Redl & Wineman, 1952, Teichman, Ben Rafael, & Lerman,1986). Often the family of patients in hospitals, as well as nurses and doctors, are stressed and this negative mood can be adopted by the patient. A relaxing environment may help people in close vicinity of the patient to relax as well and experience situations as less stressful, consequently reducing the stress experience of patients by negative emotional contagion. Instead emotional contagion could take a positive turn, whereby relaxed people in the patients` close vicinity could positively influence the patient to adopt a more relaxed mood.

Another explanation for the low stress ratings in this condition in contrast to the bare wall condition, is that the paintings could also have represented an alternative stimulus to focus the attention, thus reducing the impact of the stressful music tape by means of attention diversion. Attention diversion or distraction has been identified as a means of avoidant coping. An attentional shift away from the obnoxious stimulus, the music/noise, towards the more pleasant stimulus of the artworks, could have reduced the stress experience (Cohen and Weinstein, 1981).

Both the relaxation theory and the attention diversion theory could account for the positive effects of a seemingly reduced stress experience for participants in the scenery condition. Quite possibly both factors contributed to the effect. It may be suggested that the insignificance of the results could be attributed to a small sample and a small effect size. However, there appears to be at least an indication that paintings reflecting a calming and relaxing atmosphere have the potential to help reduce stress experiences.

The highest rating of listening stress in the bare wall condition could be explained by reasoning that in this condition the stressful music or noise might have had its fullest impact on participants. The bare wall condition did not offer participants any alternative stimulus that could have attracted their attention and consequently reduce the amount of attention devoted to the music tape. In this condition there were no stimuli present, which could have functioned as a distractor from the stressful music stimulus. An additional stimulus like a painting could have functioned as a distractor, offering an alternative focus point of attention and thus help reduce the impact of the stressful noise level.

The room in this condition was more frequently than in the other conditions described as sterile, lab-like and clinical. For participants in an experimental situation, it is quite likely that these descriptions indicate the possibility of the room eliciting feelings of anxiety, insecurity or uncertainty. Anxiety, as earlier discussed constitutes a psychological stress factor (Shumaker & Reizenstein, 1984 in Evans, Ed., Volicer & Volicer, 1978). This likely predisposition of participants` potentially unpleasant emotional state in combination with the stressful stimulus of the music tape would sufficiently account for the higher listening stress ratings in this condition.

A further explanation for the high subjective stress ratings in the bare wall condition may relate to participants` awareness of and probable discomfort of their high arousal levels. The higher arousal level after the stress induction in this condition was related to a higher baseline level, which was attributed to participants` walk up the four flights of stairs to the experimental room. The exposure to the tape raised arousal levels in all conditions, but in this condition it constituted an additional rise to the already elevated arousal levels of participants. The end result of this combined effect of high arousal may have been interpreted as being a consequence of the exposure to the tape and was accordingly rated as high listening stress.

Across the three art conditions, the pleasant and provocative art conditions showed insignificant differences, but noticeably higher levels of listening stress compared to the scenery art condition, with the highest listening stress level recorded for the pleasant art condition (graph 3). While the provocative art condition was expected to produce high stress ratings the pleasant art condition was expected to function as a moderator to the stressful stimulus, which would have to be noted for a lower stress rating.

A possible explanation for this finding could be that the higher stress ratings have arisen as a result of stimulus or cognitive overload. It has been discussed earlier that a large amount of strong stimuli presented to a person simultaneously can evoke an aversive emotional response (Veitch & Arkkelin, 1995). Participants in the pleasant art condition and in the provocative art condition may have struggled to pay attention to two strong competing stimuli simultaneously. Firstly, there was the music/noise, to which they were specifically instructed to pay attention to, and secondly there was the overwhelming presence of the pictures, which attracted their attention as well.

There is some support for this notion, as the pictures particularly in the pleasant art condition were described as distracting and it was also reported that participants tried to ignore the paintings or looked at the ceiling. The paintings in the provocative art condition were more than in any other condition described as interesting and participants also reported looking at the artworks more than in any other condition. The experimental situation in these conditions could have led to a

case of stimulus and cognitive overload, which would have been perceived as stressful. This perception of a stress experience would then have been attributed to the listening of the tape and thus the listening stress ratings in these two groups were higher.

The complexity and information rate of the stimuli in the pleasant and provocative art condition may have constituted another factor raising the stress levels. High complexity was earlier identified as being asociated with low preference and moderate complexity with high preference (Berlyne, 1971, Ulrich, 1983). The information rate relates to the relationship between stimulation levels of the environment, degrees of arousal and positive or negative responses (Mehrabian et al., a). Both conditions had a high information rate and could thus have contributed to a low preference. The paintings in the provocative art condition, in particular, had been described by participants as complex. The descriptive data, indicating the provocative art as the least liked art seemed to support the notion of high complexity being related to low preference. It may be suggested that the aspect of complexity and high information rate may have contributet to the higher stress level ratings in these conditions.

This finding has some important implications for the benefits of art to patients in a hospital environment and specifically for medical treatment rooms. It has been argued that medical procedures elicit anxiety and stress responses in patients (Volicer & Bohannon 1975), and furthermore, that attention diversion and distraction from a stressful stimulus can reduce the stress experience (Nolen-Hoeksema, 1987, 1991). The above findings indicate that strong visual stimuli can create interest and attract attention, thus providing a powerful distraction, but as such complex stimuli with a high information rate do not offer an avenue for relaxation.

Stress reduction through attention diversion is based on the idea of avoiding paying attention to a stressful stimulus and diverting attention towards more pleasant stimuli. Therefore it appears that successful attention diversion would necessitate the provision of pleasant and interesting stimuli with moderate levels of complexity and information rate for efficient functioning of distraction as an emotion regulator. The strong visual stimuli in this experiment may have led to a higher stress rating, because they competed with the second stressful stimulus of noise, to which participants were requested to pay attention.

It is conceivable, however, that by representing powerful distractors, strong visual stimuli may potentially contribute to a reduction in subjective stress experiences in patients, who are being instructed to try to ignore the stressful stimulus of any medical intervention. The intentional ignorance towards a stressful stimulus and the intentional focus on a pleasant stimulus or on stimuli with high complexity and high information rate, which were both identified as powerful distractors, may

potentially reduce the risk of a probable stimulus overload, thus reducing the subjective stress experience and avoiding high stress ratings. Considering this observation, it appears that the visual arts could benefit hospitalized patients by representing pleasant and interesting distractors to capture their attention and to divert their attention away from stressful stimuli, consequently reducing their subjective stress experience.

Another explanation for the high stress ratings in the pleasant art condition could refer to participants` change of emotional state due to the to the nature of the paintings. With regard to the nature of the paintings in the pleasant art condition, the descriptive data referring to the descriptions of the paintings, reveal that the paintings in this condition were frequently described in terms of their vibrant colours, which offered a wide range of strong colours from yellow to bright orange, red, pink, purple, blue, green and fewer more subtle colours. They were also described with reference to their mood, such as happy, cheerful and joyful.

Theories about colours claim that certain colour hues, specifically those in the yellow, red, orange range have an arousing affect and that colours can influence mood (Meier, 1966, Mehrabian & Russell, 1974, Cotton & Geraty, 1984). Research on the effect of colour on mood for example found that children in warm pink conditions were in a significantly better mood than when in a blue environment (Hamid & Newport, 1989). The paintings in the pleasant art condition would have to be described as representing primarily warm colours.

There is no evidence that participants in the pleasant art condition were more aroused than in the other conditions, but there seems evidence that participants were in a more positive mood. The descriptive data concerned with participants` activities in this condition reveal that, more than in any other condition, participants tapped their foot or fingers or nodded their head along with the music. This suggests that participants paid attention to the song, which incidentally could be rated as happy and it appears to indicate that participants may have been in a positive, fairly good and perhaps happy mood.

A likely explanation for the higher listening stress ratings in this condition compared to the scenery or provocative art condition is that participants in this condition may have appraised their presumably changed more positive emotional state as stressful and attributed it to the listening of the tape, as the questionnaire offered only one option to rate their emotional experience and that referred to the listening.

A possible explanation for the lower listening stress ratings in the provocative art condition compared to the pleasant art condition relates to the contention that people tend to look at pleasant, interesting or novel stimuli and tend to turn away their attention from unpleasant stimuli (Cohen & Geraty, 1984, Nolen-Hoeksema, 1991).

Based on this observation, it could be presumed that participants would be more likely trying to ignore the paintings, which were rated as reflecting negative mood or as being more unpleasant. Nevertheless, the descriptive data reveal that participants reported looking at the provocative art more than in any of the other conditions. This suggests that the provocative art was of such nature that it created strong interest and provoked participants to look longer and more intensively at the pictures than they would have, had the picture not been as provocative. There is some support for the notion that the provocative art was perceived as interesting from the descriptive data, which recorded the paintings frequently being described as interesting. The high interest and the increased attention devoted to those pictures would have led to a reduction in attention towards the stressful music/noise stimulus, which consequently resulted in the lower listening stress rating in this condition.

A further explanation, also based on attention, may be that participants who felt emotionally tense and uneasy with these paintings in the room engaged in a coping strategy, which involved facing the unpleasant or threatening stimulus by looking at it in order to deal with it (Folkman & Lazarus, 1980, Perrez & Reicherts, 1992). There is some support for the notion that participants felt uneasy or tense in this condition as they reported perceiving the paintings as disturbing, confusing, complex and emotional. As in the previous case, the increase in attention toward the paintings would have reduced the amount of attention given to the tape and this may have consequently resulted in lower listening stress ratings in this condition.

The higher listening stress ratings in the provocative art condition compared to the scenery art condition were expected and could be attributed to the more negative and more tense emotional state. People in a negative mood state tend to rate negative experiences as more negative (Bower, 1981). The descriptive data seem to support that the participants` mood in this condition was negatively influenced by the nature of the paintings and consequently the stress ratings were higher in this condition.

The analysis for the experimental stress ratings across all conditions established no significant differences, but the scenery condition was similarly to the listening stress ratings associated with the lowest experimental stress level, while participants in the other conditions reported similarly high levels of experimental stress (graph 4). This development is in accord with the finding that listening stress ratings and experimental stress ratings were positively correlated.

Summary

In conclusion, in experiment one the different environmental conditions did not counteract physiological stress measures, but appeared to influence subjective

measures of stress. It seems be of importance that the majority of participants tended to notice their visual environment and also expressed an interest in art, whereby pleasant art was significantly more liked than provocative art.

The implications of this may be that hospital environments deserve attention with respect to their emotional impact on patients. Decorative features, like paintings, exhibited in hospital environments should also appeal to the wide range of hospital users. Pleasant paintings appear to have the potential to create a positive emotional atmosphere in places, which asserts a positive influence on individuals residing in this atmosphere through emotional contagion. Paintings identified as having a relaxing and calming affect appear to facilitate a reduction in stress experiences. Scenery and landscape paintings have been identified as most beneficial in the reduction of stress experiences. Colourful pictures and pictures described as happy and cheerful have been fund to improve participants` mood. This is an important finding as positive mood was positvely correlated with lower stress ratings.

Furthermore, visual stimuli were found to create interest and attract attention. They can offer an alternative stimulus to stressful stimuli through attention diversion and can act as distractors and thereby constitute an effective way of coping with and reducing stressful experiences. However, while complex stimuli and stimuli with a high information rate represent powerful distractors, they may not necessarily have a positive affect on the emotional atmosphere of a place and may not necessarily help relaxation, which have both been associated with a more positive emotional experience and stress reduction. The impact of a stressful experience was found to be greatest in a bare wall environment.

Overall, the combined findings of experiment one suggest a potentially important and positive role of the visual arts in hospital environments. Experiment two aims to provide further support for this notion and experiment three, conducted in a hospital environment, will help to clarify how much the findings of the experimental research conducted in a university environment can be generalized to the real life situation.

CHAPTER III

EXPERIMENT TWO - Memory and emotion

1. Introduction

The main focus in this experiment was on the measurement of emotional memory as an indicator of the individual`s mood state resulting from a reaction to and possible interaction with stressors and visual environmental stimuli.

The experiment was designed to investigate the effect of various visual stimuli on an individual`s memory in a given environment during the experience of stress. The underlying assumptions of this research are equivalent to those in experiment one. The walls of hospital environments are often bare, lacking stimulation for positive thoughts, which could help alleviate a negative mood state and thus reduce the negative emotional experience of hospitalization (Booth-Kewley & Friedman, 1987, Porterfield, 1987, Rott, 1992). As in experiment one, it was attempted to simulate a hospital experience by conducting the experiment in a small windowless room stripped of as many visual stimuli as possible. The affect of this bare wall condition on particpants` emotional memory as indicator of their mood state on the experience of stress was compared to three other conditions, offering a variety of visual stimuli.

Experiment two also involved inducing a stressful state in participants. The stress induction phase was based on findings that daily hassles and annoyances can elicit an emotional stress response (Bernard & Krupat, 1994, Lazarus, 1984, Veitch & Arkkelin, 1995). Waiting and time wasting can be perceived as a hassle and represent an aversive stimulus (Lazarus, 1980, Veitch & Arkkelin, 1995, Weinberger, Hiner, & Tierney, 1987). Events appraised as negative, uncontrollable, unpredictable or ambiguous have been identified as stressful and these can include waiting and wasting time (Taylor, 1990). This notion is supported by the observation that there is a dislike for unpredictable delays and that uncertainty, associated with a lack of predictive power, relates to an increase in arousal (Veitch & Arkkelin, 1995). The experience of such an unpredictable delay raises the possibility of an emotional stress reaction and negative mood (Gerdes & Guidi, 1987).

The stress induction phase involved making participants wait on their own in the small experimental room, while being exposed to various environmental stimuli. Participants were also deceived in two ways in order to facilitate the stress experience. Firstly, they were led to believe that the actual experimental task would take about fifteen minutes. The largest part of the experiment, however, was taken up by eleven minutes of waiting, while the actual task would only take four to five

minutes making the overall time involved add up to approximately fifteen to twenty minutes, as previously outlined to the participants. It was expected that the time spent waiting would be perceived as wasted, leading to a an increase in emotional tension indicating a stressful emotional experience (Kluge, 1987). Another possibility was that participants would simply become bored, which would bring about a lowering of an individual`s arousal level. Similarly to a heightened level of arousal, a lowered level of arousal has also been identified as representing a negative emotional state (Berlyne, 1974, Morrow & Nolen-Hoeksema, 1990).

The second deception was created by implying that the task of recalling emotion words would involve being given words to be later recalled. The true task, however, required participants to come up with words themselves by retrieving memories about a personal emotional experience. This deception appealed to aspects of participants` cognitive activity. The cognitive activity, i.e. an individuals` thoughts, during the waiting was perceived to be of importance, because thoughts and imagination had earlier been identified as a major source of emotions (Arnold, 1960, Izard, 1991). For example, thoughts relating to the anticipation of the unknown and the upcoming test situation could have also been expected to create emotional tension, increasing the possibility of perceiving the situation as stressful. Furthermore, possible fears or thoughts about missing the next lecture or an appointment could have added to the stress experience. This stress experience was expected to activate coping strategies (Cohen, Kessler & Gordon, 1995).

Similar to experiment one, the pictures on the wall were expected to offer an opportunity to engage in avoidant coping through distraction, which was conceived to function as a potential emotion regulator (Taylor, 1990). People were suspected to distract themselves from possible negative emotions and thoughts arising from the waiting by turning their attention to the pictures on the wall (Nolen-Hoeksema, 1991, Nolen-Hoeksema, 1987). As outlined earlier, environmental stimuli such as visual scenes evoke physiological reactions and have an emotional impact on the viewer (Ittelson 1973, Mehrabian & Russell, 1974, Wehmer, Brejnak, Lumely & Stettner, 1995).

Mood played an important role in this experiment. Mood has been found to be positively correlated with the experience of stress, whereby a stressful state tends to be associated with more negative moods (Costa & McCrae, 1987, Pennebaker, 1983). Improved mood, however, and more positive emotional states seemed to buffer and help coping with stress and thus appeared to assume a protective role in situations of stress (Porterfield, 1987, Rotton, 1992).

The close relationship between mood and associated memories was of particular interest in this experiment. The decision to assess participants` emotional state on the basis of emotional memory was based on the finding that mood influences

memory and recall. People in elated or pleasant moods retrieved more happy or pleasant memories than people in depressed or unpleasant moods, who were found to retrieve more unhappy or unpleasant memories (Bower, 1981, Teasdale, Taylor & Fogarty, 1980, Teasdale & Taylor, 1981, Teasdale & Russell, 1983, Teasdale & Fogarty, 1979).

Unpleasant visual stimuli or stimuli reminiscent of the current emotional state of the perceiver were already identified as being more likely to elicit an avoidant response and as priming negative thoughts, thus serving to maintain the negative mood state (Bower, 1981, Strauman & Higgins, 1987). Attractive views were found to be most effective as a potential emotion regulator, because the interest and attention devoted to them can block or reduce negative stressful thoughts, fostering physiological restoration (Ulrich, 1979). Furthermore, it was said that an unthreatening stimulus like natural views could evoke a relaxation response indicated by an arousal reduction and more positively toned emotional reactions (Benson, 1975, Ulrich, 1979, 1983). Quiet warm colours have also been found to change mood (Cotton & Geraty, 1984).

The present research attempted to gain insight into participants` emotional and mood state by asking them to write down a personal emotional experience in just one or two sentences after the stress induction. This request was unexpected by participants, consequently resulting in a fairly spontaneous rather than a premeditated response. It was expected that the visual environmental stimuli would perhaps be reflected in the nature of the responses. Essentially it was hypothesized that the pleasant art conditions and possibly more so the colourful art condition, would reflect in the recall of more positive emotional memories, while the bare wall condition and the provocative art condition were predicted to result in more negative emotional memories, with the latter being likely to show the most negative responses.

In addition to the information given in the short account of an emotional memory, participants were also asked to complete a brief questionnaire. This questionnaire contained the same questions as that described in experiment one, except here they were asked to what extent they would describe the waiting and the experiment as stressful and additionally, whether they experienced a mood change and how they would describe their mood before and after the waiting. This information was intended to provide a more comprehensive insight into participants` perception of the situation and their emotional state and was later used in the explanation of some of the trends in the data analysis.

2. Design

The experiment was a single factor design between participants. Each of the four conditions (1) pleasant mixed art condition - a mixture of four colourful floral motives and two scenery paintings, 2) scenery art condition - two scenery and landscape paintings, 3) provocative art condition - four paintings, depicting human beings and parts of human beings, 4) bare wall condition) represented the independent variable and the emotional memory as well as the stress ratings represented the dependent variables.

3. Method

Participants

The participants were primarily first year undergraduate students of psychology at the University of Canterbury recruited from all of the compulsory laboratory classes. Some participants were students recruited from the University campus. The majority of participants were female. In experiment two eighty students were tested, eighty- four percent female and sixteen percent male participants. Participants varied in age between 18 - 45 years. The participation was voluntary and all participants were informed that they could withdraw from the experiment at any time, if they desired to do so.

Materials

1) A small windowless room as described for experiment one
2) Genuine artworks as described for experiment one
3) An information sheet about the experiment to present to the participants
4) A questionnaire as described in experiment one, except here participants were asked to describe to what extent they perceived the waiting to be stressful instead of the listening. Furthermore, participants were asked whether they experienced a mood change and to write down how they would describe their mood a) before and b) after the waiting. The back of the questionnaire would be used for a brief account of an emotional experience.

Procedure

As in experiment one, most of the participants were recruited from their compulsory laboratory classes by writing their names on a provided list showing a

timetable, while some of the participants were recruited from the university campus. The initial procedure, of leading one participant at a time into the experimental room representing one of the four conditions and making them wait for one minute in order for them to familiarize themselves with the environment, was similar to that in the first experiment. The participants were presented with an information sheet and a consent form fulfilling the same purpose as in experiment one.

After having received written consent the experimenter gathered the consent form and the information sheet and left the room after leading the participants to believe that she would return within one minute with the required materials. At her return, eleven minutes later, the experimenter apologized for the delay and placed a questionnaire upside down as well as a pen on the table in front of the participant. The participant was then instructed to write down in one or two sentences one emotional personal experience using as many words descriptive of associated emotions as possible. It was emphasized that it was important to keep it short and not to spend much time on it. In conclusion of this, they should turn over the page and continue answering the questions on the other side of the page. The participants were left alone in the room until they finished the task. Afterwards they were debriefed by being told about the true nature of the experiment and were thanked for their participation.

The same method was applied throughout all conditions, with the only difference being the various environmental stimuli and the questionnaire for the bare wall condition, which had the art questions omitted.

4. Results

Descriptive data

As in experiment one the descriptive data were sorted into as many categories as needed in order to gain some information about the contents and the frequency of these recordings. The activities, for example, could be categorized into a) visual activities - looking at the pictures, looking at other things, c) mental activities- thinking, wondering, planning, d) physical activities - scratching ones head, writing, getting up, and so forth. The same procedure was applied to data referring to the description of the environment and the art, described in detail for experiment one.

Coding of data

Coding of the emotional memory and interrater reliability

The experimenter and two additional psychology students each independently coded the story representing the emotional memory into two categories of either positive (1) or negative (2) overall mood reflected by the story. The results were then compared and produced an initial ninety-six percent agreement showing high interrater reliability.

The remaining four percent of cases initially showing disagreement, because of some inherent ambiguity in the story could partly be resolved through discussing the sentence(s) in the group, but in two out of eighty cases an additional opinion was sought and the rating was eventually decided by a majority vote, so that for the emotional memory finally one-hundred percent agreement was achieved. For the consequent data analysis, which only functions properly if a numerical unit for every one of the eighty cases is provided, it was essential to make a final decision for the ambiguous cases.

Coding of the mood state and interrater reliability

The experimenter and two additional psychology students each independently coded the mood state according to the criteria of whether participants` descriptions of their emotional state seemed to evidence either more or less emotional tension or arousal as well as whether they seemed to evidence a more or less positive (1) or negative (2) mood state along the dimension of pleasantness or unplesantness before and after the waiting period. This approach has been adopted with reference to Russell`s Affect Grid measuring affect along the dimensions of arousal and pleasantness (1989). A comparison of the independent ratings produced an initial agreement of ninety-seven percent showing a high interrater reliability. The remaining three percent of cases showing disagreement, were resolved after a group discussion and eventually one-hundred percent agreement was achieved.

Coding of other data

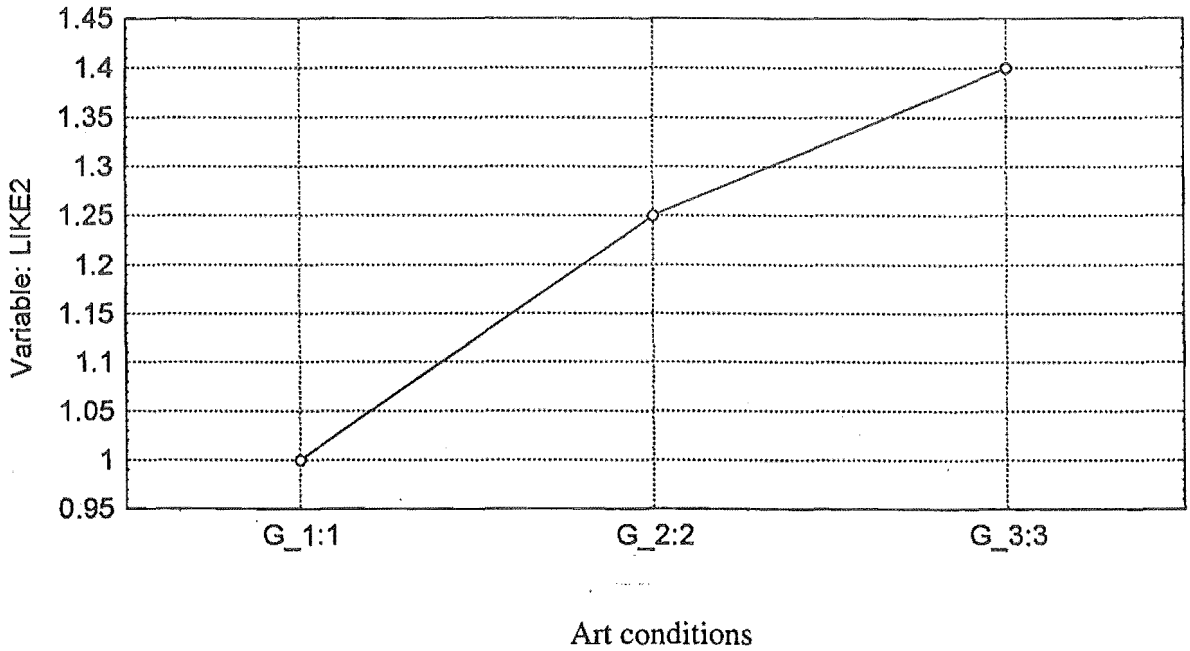
The data providing yes/no or female/male answers were dummy-coded, whereby "yes" was transformed into "1" and "no" into "2" and "female" into "1" and "male" into "2".

Analysis of variance (ANOVA)

Of importance and interest in this experiment was whether there were any significant differences in participant's mood at the end of the waiting period and in the accounts of participant's emotional memory. The data analysis would show, whether participants` mood at the end of the waiting period would be more likely to be more positive or more negative and whether participants were more or less likely to recall more positive or more negative experiences in any particular condition.

In this experiment one hundred percent of participants claimed to have taken notice of their environment. Across the art conditions 92.2 percent claimed they were interested in art. An analysis of variance comparing the liking of art resulted in a significant difference ($F= 5.44$, $p<.0069$) between the pleasant and the provocative art condition, with the pictures in the pleasant art condition being rated as liked by one hundred percent of the participants and the provocative art being liked significantly less than the pleasant art (graph 5). These findings are similar to and in line with those in experiment one.

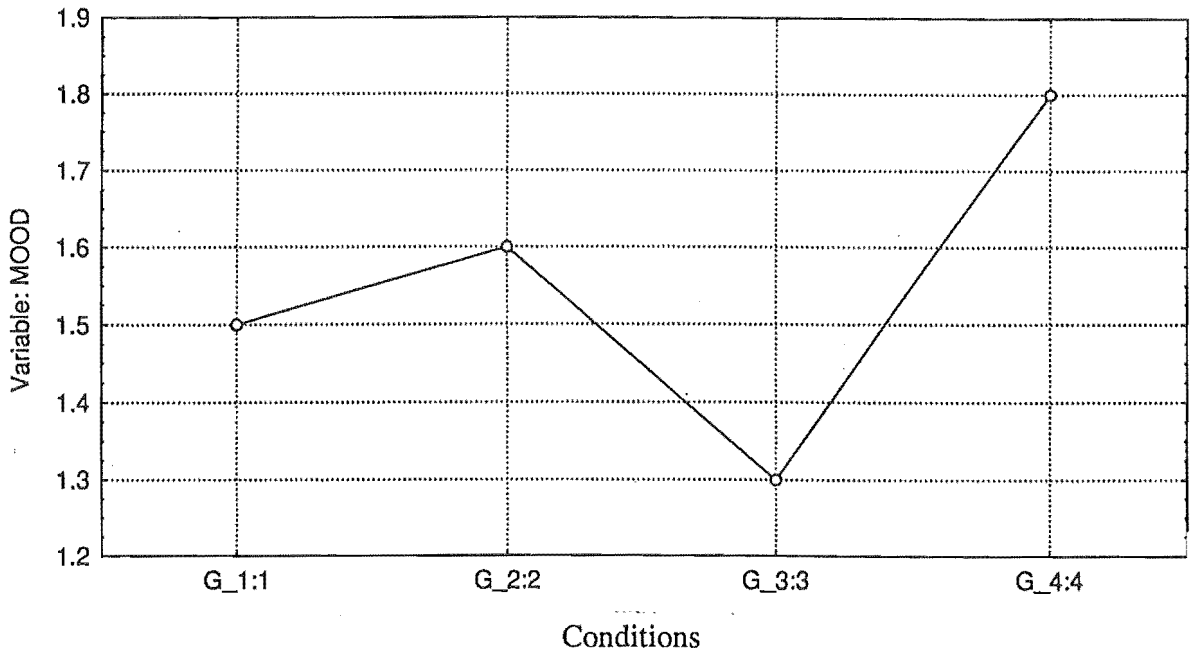
Graph 5: The comparison of liking of art across all art conditions.
G 1.1 = pleas. art, G 2.2 = scenery art, G 3.3 = provoc. art



An analysis of variance comparing mood across all four conditions established a significant result ($F= 3.83$, $p < .0130$, graph 6). The most positive mood was recorded for the bare wall condition, followed by the pleasant art condition, then the scenery condition and the most negative mood was recorded for the provocative art condition.

Graph 6: The comparison of mood ratings across all conditions

G 1.1 = pleas. art, G 2.2 = scenery, G 3.3 = bare wall, G 4.4 = provoc art

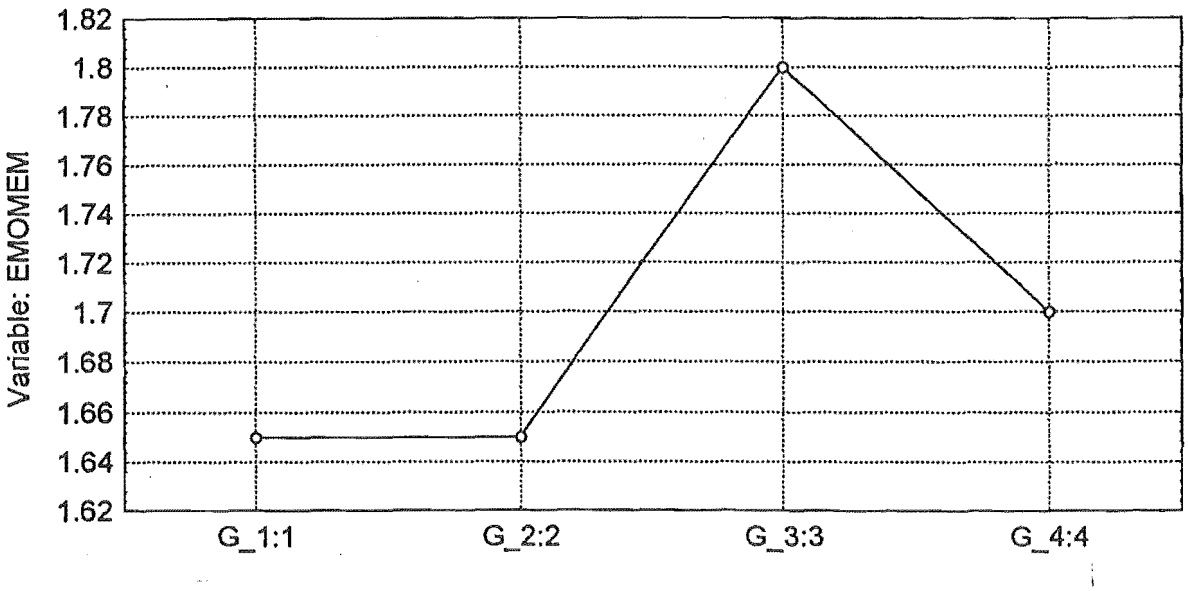


At closer investigation, applying further ANOVA analysis, using planned comparisons between two conditions at a time, it was found that a significant difference in mood occurred between the bare wall and the scenery condition ($F = 3.98$, $p < .0497$), whereby participants showed better mood in the bare wall condition. There was also a significant difference between the bare wall and provocative art condition ($F = 11.05$, $p < .001$), with participants showing better mood in the bare wall condition and between the pleasant art and provocative art condition ($F = 3.98$, $p < .4972$), with participants showing better mood in the pleasant art condition.

An analysis of variance across all four conditions showed no significant results in the comparison of emotional memory (graph 7).

Graph 7: The comparison of emotional memory across all conditions.

G 1.1 = pleas. art, G 2.2 = scenery, G 3.3 = bare wall, G 4.4 = provoc.art

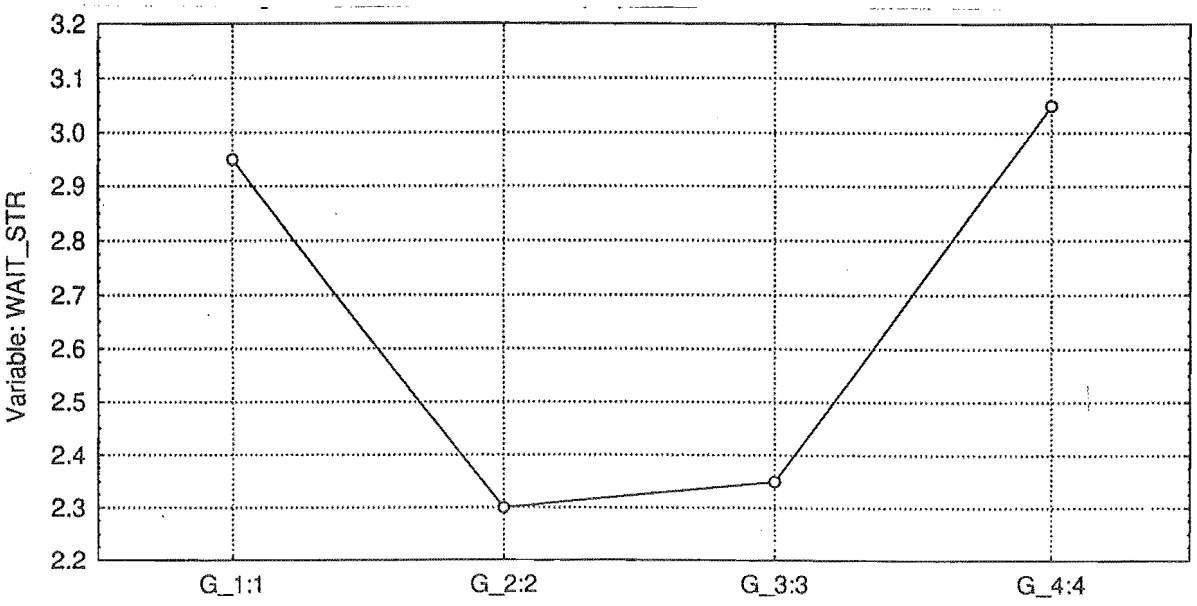


Graph 7 shows that the pleasant and the scenery art condition produced the most positive memory results, followed by the provocative art condition at intermediate level, while the bare wall condition produced the most negative memory results.

Of further interest were the waiting and experimental stress ratings. An analysis of variance focusing on waiting stress across all conditions did not result in a significant difference (graph 8), but the graph shows that participants in the scenery and the bare wall condition have recorded similarly low waiting stress levels, while the pleasant art and the provocative art condition recorded similarly high levels of waiting stress.

Graph 8: The comparison of waiting stress across all conditions.

G 1.1 = pleas. art, G 2.2 = scenery art, G 3.3 = bare wall, G 4.4 = provoc. art

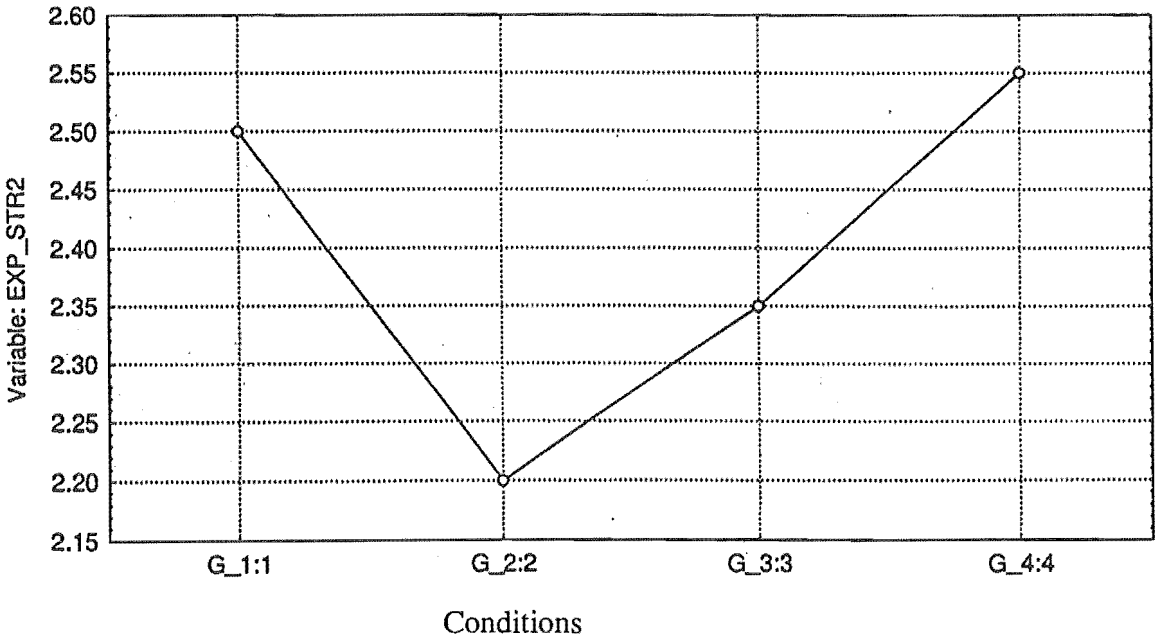


A correlational analysis revealed waiting stress and mood to be negatively correlated at $r = -.37$, $p<.00084$. This indicated that the more positive the mood for participants (the lower the score in mood (1= positive mood, 2= negative mood) the lower the waiting stress ratings.

An analysis of variance comparing experimental stress across all conditions revealed no significant differences between the groups, but graph 9 shows that experimental stress was lowest in the scenery condition, followed by the bare wall condition at medium level and lastly the pleasant art condition and the provocative art condition with similarly high experimental stress levels.

Graph 9: The comparison of experimental stress across all conditions.

G 1.1 = pleas. art, G 2.2 = scenery art, G 3.3 = bare wall, G 4.4 = provoc. art



A correlational analysis between waiting stress and experimental stress revealed that they were positively correlated at $r = .68$, $p < .00000$. This indicated that high waiting stress ratings were associated with high experimental stress ratings.

In summary, all participants took notice of their environment, when they were made to wait on their own in the experimental room. Of all participants in the art conditions, over ninety percent claimed to be interested in art and the pleasant art appealed to everyone in this condition, while the provocative art was significantly less liked. There were significant differences in mood between participants in the bare wall and the scenery condition, between participants in the bare wall and provocative art condition and between participants in the pleasant and provocative art condition.

Overall, the most positive mood was recorded for the bare wall condition, followed by the pleasant and then the scenery art condition and the most negative mood was recorded for the provocative art condition. Mood was also found to be positively correlated to waiting stress. There were no significant differences in emotional memory, but the pleasant and the scenery art condition produced the most positive memories, while the bare wall condition had the most negative results. No significant differences were found in waiting or experimental stress ratings across the conditions, but they correlated positively. Participants in the scenery condition had the most favourable results, followed by the bare wall condition with both showing low stress ratings, while the pleasant and the provocative art showed similarly high level of waiting stress.

5. Discussion

The observation that all participants reported taking notice of their environment in this experiment, which involved waiting by themselves for eleven minutes in the experimental room, is interesting with respect to patients in a hospital environment. The finding shows that people under these conditions do take notice of their environment. Considering that it had been established that environments assert influence on people`s physical, mental and emotional state (Ittelson, 1973, Wehmer, Brejnak, Lumely & Stettner, 1995), this would suggest that it may be important to consider what effect an environment may have on people`s physical, mental and emotional state when they are passing time.

It was found that over ninety percent claimed to be interested in art. Previous discussions identified interest as playing an important role in attention attraction and attention diversion or distraction as a means of avoidant coping. The finding that the majority of people claim to be interested in art would suggest that artworks in a room would at least initially attract interest and may thus represent a focus of attention. Ulrich (1979) argued that attractive visual stimuli and natural views may elicit positive emotional reactions and reduce stressful thoughts and anxiety, thus fostering well-being. Therefore, designers of hospital environments could make use of the knowledge that the majority of people appear to be interested in art, which could capture patients` attention and potentially evoke a positive emotional reaction and thus counteract stress experiences.

The finding that the pleasant artworks were liked significantly more than the provocative artworks was expected and shows the same trend as noticed in experiment one. As already explained in the discussion for experiment one, the paintings were selected on the basis of a pilot test, which established that the pleasant paintings reflected more positive mood and rated as more pleasant, while the provocative artworks were identified as reflecting more negative mood and were rated as provocative. It was expected that the variety of paintings in the pleasant art condition would appeal to a wider range of people and this was confirmed by the results.

There were significant differences in mood recordings between some of the conditions. This is an interesting finding, since all factors were equal throughout all conditions, except for the manipulated variable of the artworks, it has to be concluded that the visual environment did assert a significant influence on participants emotional mood state. It was anticipated that the visual environment would assert some influence on participants` mood state, but the findings were not quite as expected.

The bare wall condition, for example, scored the most positive mood ratings, significantly more compared to the scenery and the provocative art condition. The

pleasant art condition also scored significantly more positive mood ratings compared to the provocative art condition. It appears to be of particular interest that the bare wall condition was associated with the highest positive mood recordings after the waiting, as it was hypothesized that the mood in this condition would be more likely to be more negative compared to the pleasant and scenery art condition. There may, however, be a simple explanation for this.

Participants were made to wait eleven minutes exactly and in this time it was entirely up to the participants to do what they wanted. Although an attempt was made to remove all extraneous visual stimuli, apart from the artworks in the art conditions, it could not be ruled out that participants would occupy themselves by taking out reading material from their bags. In order to avoid participants becoming suspicious, it was decided not to ask them to leave their bags outside the experimental room or to put them in a certain place. This made it easy for participants to access extraneous visual stimuli.

The waiting was intended to create emotional tension by being perceived as an annoying event or hassle, thus eliciting a negative and stressful mood state (Gerdes & Guidi, 1987). The occupation with reading or writing would have represented a powerful distraction (Duval & Wicklund, 1973). For stressed individuals it would have helped to divert participants` attention away from the aversive thoughts and feelings of wasting time eliminating the annoying stimulus in both cases. The attention devoted to the visual and mental stimulus would have also taken participants mind off the anticipated research and prevented them from developing negative thoughts or worries concerning the research, which could have also contributed to an increased stress experience.

Another possibility was that participants would experience understimulation and boredom in this waiting situation, associated with lower than optimal arousal levels. Similar to higher than optimal levels of arousal as in stressful situations, bored individuals also tend to engage in active coping by changing the stimulus, which in this case would constitute the same activity, namely taking out some reading or writing material and have a similar effect on reducing the stressful emotional experience (Berlyne, 1974).

The descriptive data about participants` activities reveal that in the bare wall condition participants frequently reported to have read or to have made notes. In line with the contention that distraction may alleviate negative mood (Locke, & Keltner, 1993), it appears that participants` pre-occupation with "sensible" things to do, filling in time while waiting prevented them from being negatively influenced by the waiting time and from developing negative thoughts and consequently a negative mood state. People`s engagement in activities might have made time appear to pass faster and

therefore the waiting was not perceived as annoying and a positive mood was maintained.

With regard to the aspect of control, an attentional shift away from an obnoxious stimulus, like negative thoughts associated with the waiting, could also have led to an increase in perceived control (Cohen & Weinstein, 1981) and in this way functioned as an effective factor in stress reduction (Averill, 1973). It may have been somewhat fulfilling and satisfactory for the participants to do something giving a feeling of being in control, rather than just powerlessly sitting and waiting patiently. This probable satisfaction of perceiving to be in control as well as achieving some work may have consequently led to a more positive mood. A combination of these factors may have contributed to the immunity of participants` mood to be negatively affected, which could account for the positive mood in this condition.

With respect to this development, the experimental design could be regarded as flawed. Maybe provisions should have been made to prevent participants from accessing extraneous visual and mental stimuli. However, it could be expected that patients in hospital environments would engage in the same type of activities, provided such distractions are available and they are physically able to make use of them.

It may be cautiously and with some reservation suggested that the implication of this finding could be that the possible negative emotional impact on patients` mood of a bare hospital environment may be reduced by the provision of visual distractors like magazines or television. However, it would not seem appropriate to assert that participants in a university experiment would be in the same mental and emotional state as hospital patients. While both groups may experience some anxiety, patients are more likely to experience physical discomfort as well, which could influence their mood negatively.

This would result in a different baseline of mood between the two groups, with the patients being more likely to experience less positive mood compared to experimental participants. The above results, however, refer more to a maintenance of positive mood than changing mood.

As expected, the mood recordings were most negative in the provocative art condition. The paintings in this condition had been rated as reflecting negative mood and consequently it was expected to find an effect of mood contagion, which appeared to have occurred. The concept of mood contagion suggests that the emotional atmosphere of places can influence on peoples` emotional state (Redl & Wineman, 1951). The descriptive data reveal that the provocative art was frequently described with reference to its emotional and mental content as for example confusing, meaningful, about emotional states, disturbing, about psychological states, hidden message, and so forth. These negatively toned characteristics would indicate

that the paintings were more likely than others to influence participants` mood negatively through emotion contagion.

Another possible explanation for the high negative mood ratings in this condition may relate to findings that visual stimuli or distractors reminiscent of a negative emotional state can prime negative thoughts and feelings (Bower, 1981, Strauman & Higgins, 1987). The negatively toned mood reflected by the paintings could have primed negative thoughts in the participants, which were reflected in negative mood ratings.

However, participants in the provocative art condition reported to have read, taken notes or studied at a similar rate as in the bare wall condition. The reason for participants engaging in distracting activities in the bare wall and provocative art condition are expected to be of a different nature.

Participants appear to have engaged in the described activities in the bare wall condition, because it did not offer any stimulants. In the provocative art condition they would appear to have engaged in these activities in order to distract themselves from the images described as disturbing and confusing. Nevertheless, in both conditions the effect on mood was different. While the activities in the bare wall condition seemed to have been able to contribute to the maintenance of a positive mood, there is no evidence that they had the same effect in the provocative art condition, as the mood ratings were most negative. This seems to add further support to the theory of emotion contagion, because despite the attempt of distraction participants did not succeed to elevate their mood or prevent their mood to change negatively.

Both the above mentioned explanations for the high negative mood ratings in the provocative art condition may apply simultaneously or they may apply differently to different individuals. The implications of this finding are of great importance. Firstly, it suggests that artworks have an effect on the emotional atmosphere of a place, which can have a contagious affect on people in these places. Secondly, this finding suggests that artworks that reflect negative mood are unsuitable for the improvement of patients` emotional and mental well-being. A third implication is, that attempts to improve mood by means of providing distractors such as magazines or television, as had been suggested before, may not prove successful, if the room overall reflects a negative emotional atmosphere.

Expectations, a component of control, have been identified as playing an important role in emotional experiences (Glass & Singer, 1972, Katz & Wykes, 1985). With regard to this, it seems justifiable to propose that the experimental room with bare walls may have had a rather more neutral emotional atmosphere for participants in this experiment, compared to patients awaiting medical treatment in a room with bare walls. The expectations for both rooms would be different and would

contribute to the creation of an emotional atmosphere. Interior decorations, like paintings, which contradict patients` negative expectations may therefore constitute an efficient emotion regulator by means of emotion contagion. The research findings seem to suggest that interior features of places are of greater importance than may have been realized with respect to emotional atmosphere.

The paintings in the pleasant art condition, which were described as colourful and happy and the paintings in the scenery condition, which were described as relaxing and calming, produced similar results for mood ratings. For both conditions, the paintings did not help to improve participants` mood in comparison to the bare wall condition.

This, as explained earlier, appears to be related to participants keeping themselves busy otherwise, when there was no visual stimulation provided. The descriptive data support this notion that a lack of visual stimulation is irritating by revealing that participants in the bare wall condition reported looking for imagery or staring into nothing, but they also reported reading or taking notes.

While a lack of visual stimulation in the bare wall condition appeared irritating to participants, aversive visual stimulation in the provocative art condition seemed just as irritating, as participants reported to have engaged in reading and writing activities in the provocative art condition at a similar rate as in the bare wall condition. Reports of reading or writing were rare in the pleasant art and scenery condition. The paintings in the pleasant art condition were most liked, just ahead of the paintings in the scenery condition. Participants in the pleasant art condition reported more than in any other condition to have looked at, studied, examined and analyzed the paintings. Participants in the scenery condition also reported primarily to have looked at the pictures or to have looked around.

Although there was a large amount of visual stimulation in the pleasant art condition and less in the scenery art condition, the eleven minutes spent looking at the pictures or looking around could have appeared to participants as a fairly long time due to a lack of other activities. Despite or perhaps because of the pleasant nature of the paintings, participants` moods appeared to have been negatively influenced by the waiting. This could be attributed to the perceived lengths of waiting time and a perceived waste of time, as the looking at pictures may not have been as satisfying and fulfilling as reviewing lectures notes for example.

This finding seems to suggest that the waiting stress induction could have been more successful if participants had been prevented from having access to extraneous visual and mental stimulation in this experiment. The results concerning mood ratings seemed to have been negatively influenced by the fact that participants at least in two of the conditions chose not to wait passively, but rather to engage in reading and writing activities. Nevertheless, the finding that participants in the

scenery and in the pleasant art condition were captured by the paintings to such an extent that they rarely reported engaging in any other activity, but looking around and at the pictures seems to speak for rather than against these conditions.

In contrast, the evidence that participants in the bare wall and provocative art condition seemed to desperately seek distraction speaks against those conditions, despite the bare wall condition showing the highest positive mood ratings. Without the available distraction the mood ratings in the bare wall condition may have been quite different and probably a lot less favourable.

The comparison of emotional memory showed that the pleasant and the scenery art condition produced, although not significantly differently (as can be seen in graph 7), the most positive memory results, while the bare wall condition produced the most negative memory results. The finding that the pleasant and the scenery art condition showed the most positive memory recordings is as expected.

It was hypothesized that participants` mood would be improved by the pleasant paintings or that the mood ratings would at least be more positive in these conditions than in the other two conditions. It was further hypothesized that an improved mood would result in more positive memories. However, the previous findings concerning mood did not confirm this hypothesis. If the improved mood was highly correlated to positive memories, then the bare wall condition, which showed the best mood ratings should also have produced the highest positive memory scores, which it did not. In contrast, the bare wall condition produced the highest negative memory score. This can however be easily explained.

The pleasant and the scenery art condition offered a variety of visual stimuli, depicting motifs familiar to everyone, like flowers and nature. It may be argued that flowers in particular are often associated with positive occasions or events, such as the end of winter and the coming of spring with its first flowers and blossoms, the beauty and warmth of summer with flowers in full bloom, or the event of all sorts of celebrations. Pictures of New Zealand scenery and nature, may be particularly well suited to evoke positive memories in New Zealanders, because in a country where there is abundant nature around people and where outdoor activities are extremely popular those motives may easily be associated with positive childhood memories of playing or just spending time outdoors for example.

The paintings in these conditions were described by participants as pleasant, happy, joyful, or calming and serene, but also as familiar and homely. It should also be noted that in the pleasant and in the scenery art condition participants looked at the pictures and around the room instead of engaging in other activities. On the basis of these descriptive data, it is suggested that participants in these conditions took notice of the paintings and may have felt that they could positively relate with the content and the nature of the paintings, which led them to recall more positive emotional

memories. On the other hand, the emotional atmosphere created by the pleasant mood reflected by the paintings in the room may have been more positive, which could have led participants to recall more positive memories.

The implication of this finding for designers of hospital environments would be that it appears to be of importance to provide visual stimuli, which are not only pleasant, but which also provide patients with themes and content that they can relate to. It was earlier outlined that the cognitive approach to emotion emphasized prior knowledge and meaning in the emotion experience (Izard, 1991). It appears vital that decorative features, like paintings, should offer a range of styles and themes, which could appeal and convey meaning to a variety of people of different ages, walks of life and cultures.

The provocative art condition produced higher negative memory ratings than the pleasant and scenery condition. It has already been discussed that people in a negative mood tend to have less positive thoughts (Beck, 1967). On these grounds a likely explanation for this would be that participants` mood, which was recorded as most negative in this condition, influenced their memory to recall more negative emotional experiences.

Participants` negative thoughts may also have been primed by the nature of the paintings rated as negative and provocative. The descriptive data reveal that participants perceived the paintings as meaningful, confusing, too complex, as making one think, incomprehensive, disturbing, hidden message, and so forth. The description of meaningful in this context should not be confused with the type of meaningful paintings in the pleasant art condition. It would appear to relate in this case more to an understanding that the content of the painting has some deep meaning, rather than the painting being meaningful to the participant. The perceived disturbing and confusing character of the paintings overall would lend support to the idea that they had a strong potential to elicit more negative thoughts than those paintings in the pleasant and scenery art conditions.

The discussion so far has shown that paintings which reflect negative mood can assert a negative influence on people`s emotional state and their emotional memory. Despite this powerful effect, the emotional memory ratings in the provocative art condition were not as highly negative as in the bare wall condition, which showed the highest negative emotional memory ratings.

Participants in the provocative art condition had not only something to look at and to think about, but they also had the time and peace to think. The more positive emotional memory in this condition compared to the bare wall condition, may be a result of participant's coping attempt to counteract the negative mood reflected by the paintings and to improve their mood by consciously thinking of a positive emotional experience. Another possibility is that participants inferred that the experimenter

created the environment with the intention of seeing whether their memories would be more negative and may have reacted to demand characteristics, by deliberately thinking of something more positive.

Furthermore, participants may have engaged in comparative measures. Wills (1981) argued that people experiencing negative feelings can improve their well-being by attending to equally or more negatively valenced standards of comparison. A positive outcome of comparison could lead to a feeling of satisfaction and result in a more positive emotional state and consequently more positive emotional memories. For participants in a negative emotional state the provocative art could have represented a more negatively valenced standard of comparison to their own. According to Wills, participants engaging in a comparison of their own mental and emotional state with that reflected by the paintings, could have recognized their own state as more positive, thereby improving their own emotional state, which would result in more positive memories.

The bare wall condition, which produced the highest negative emotional memory ratings, did not offer any positive images to participants, which could stimulate thoughts in a positive direction and neither did it offer negative images to which participants could have compared themselves favourably. The room with the bare walls may initially have had a more neutral emotional atmosphere compared to the pleasant and provocative art conditions, which would make both the recall of positive and negative emotional experiences equally likely.

If participants` thoughts and memory were not cued by external visual stimuli, then perhaps internal stimuli, like the unpleasant changes in arousal resulting from perceiving the waiting as stressful, could have functioned as a cue to their emotional memory when requested to recall an emotional experience. Participants may have tended to recall an emotional experience similar to their most recent emotional experience, which in this case would have been the negative experience associated with waiting in the experimental room, not knowing why. Consequently, this condition, which offered little extraneous stimuli, may have led participants to recall more negative emotional experiences, because their most recent emotional experience, the waiting, was more likely to be negative than positive. There is some evidence for this contention of a recency effect. The descriptive data reveal that in this condition more than in any other, participants` recall of an emotional experience referred to the experiment and the waiting itself.

The implication of these findings is that visual stimuli can have a strong influence on people`s emotions and thoughts. Under consideration of the contention that positive thoughts and emotions are of benefit and negative thoughts and emotions are detrimental for the maintenance and improvement of health, it seems of vital importance to acknowledge that paintings, such as in the pleasant and scenery art

condition can have a very positive effect on patients thoughts and emotion. Furthermore, if the recency effect can be confirmed, then this finding may be very important for the accommodation of hospital patients. The most recent emotional experience of hospital patients is more likely to be of a negative nature, due to their sickness. This would imply that their thoughts may be more likely to be also negative, which is unfavourable for their health. The knowledge that certain visual stimuli can potentially assert positive influence on people`s thoughts and emotions can be used to improve hospital environments with paintings.

A comparison of waiting stress across all conditions did not result in a significant difference, but as graph 6 shows, participants in the scenery and the bare wall condition produced similarly low waiting stress levels, while the pleasant art and the provocative art condition recorded similarly high levels of waiting stress.

The very high waiting stress ratings in the pleasant art condition were not expected. This development has to be regarded as the result of an experimental flaw, which arose out of the combination of two factors, the experiment title "Memory and Emotion" and the amount of dominant paintings in the very small windowless room. Participants may have immediately suspected the paintings as having something to do with the research, which would have influenced their thinking and reaction towards the paintings while they were waiting.

The descriptive data revealed that participants reported more than in any other condition that they were looking at the paintings, analyzing, studying or examining them, but also attempting to memorize the paintings. This appears to relate to the inferences made about the nature of the experiment, which was expected to involve remembering features of the paintings. Support for the notion that participants had suspicions about the paintings in the experimental room comes from the descriptive data, which reveal descriptions of the room as fake, artificial, formal, unusual, and that it was attempted to create interest with the pictures.

Given the amount of information on the number of paintings, an attempt to memorize it would most likely have proven a very stressful task. This would explain the high waiting stress ratings in a condition, which was thought to reduce waiting stress ratings. It appears that the descriptions of the room for this condition, which was described as pleasant, warm, peaceful, relaxing, restful and calming would support the notion that the waiting might have been rated as less stressful in this room if it had not been for participants misinterpretation of the task. The perceived stress appeared to be more the result of participants` interpretation or inferences about the nature of the experiment, namely that it was thought the experiment was about memorizing the paintings, rather than being the result of the waiting itself.

Alternatively, it is possible that participants were strongly influenced by the nature of the colourful variety of paintings, affecting and changing their emotional

state, which was then perceived and rated as waiting stress. Another explanation relates to the argument that information overload can lead to stress experiences (Veitch & Arkkelin, 1995). Participants may have been overwhelmed by the strong presence of the paintings in the tiny room and experienced a case of information overload, which may have been perceived as stressful and was then interpreted as waiting stress.

The explanations for the high waiting stress ratings in the pleasant art condition all indicate that the development is more likely to be the result of an experimental flaw rather than a genuine finding. For this reason the findings relating to stress ratings in this condition can be ignored.

The scenery art condition, which showed only two paintings, constituted an attempt to improve on this situation. This time the result was as expected. The scenery art condition showed the lowest waiting stress ratings. Observations that in this condition participants described the paintings and the room as relaxing, calming and quiet would suggest that the scenery pictures had a noticeable positive, although not significant, impact on participants` emotional and mental state and their subjective stress experience.

This finding, together with the other two favourable findings of fairly high positive mood recordings and high positive memory recordings, makes the scenery condition overall the most positive and favourable condition. There is every indication that this condition would constitute the most efficient condition to counteract stress experiences in individuals. It appears that decorative features, which help to create a relaxed emotional atmosphere, which constitutes the opposite of a stressful atmosphere, is best suited to combat stress experiences.

The fact that the bare wall condition showed very low waiting stress rating seems to indicate that the stress induction may not have been successful, but there are two observations to be considered. Firstly, this finding may be explained with the experimental conditions for the waiting period as opposed to the real situation. The expectations, which are associated with different environments seem to be of great importance for this finding.

Newman (1984) found that patients admitted to hospital show signs of anxiety and stress. Patients in a hospital environment awaiting medical treatment are more likely to experience stress, because of the probable physical, mental and emotional discomfort from which they seek relief (Cohen & Lazarus, 1973). Patients are also more likely to expect unpleasant, physically, mentally and emotionally threatening treatment (Shumaker & Reizenstein, 1984, Teichman et al., 1986, Volicer & Bohannon, 1975). It had been discussed earlier that with such expectations, waiting can add to the individual stress experience. Participants in this experiment, however, had no reason to expect anything too unpleasant or mentally, physically and

emotionally threatening to happen to them. Thus the waiting was less likely to evoke strong anxiety or stress reactions as in the case of probable medical procedures.

Secondly, the experimenter observed that in the bare wall condition more than in any other condition, participants were ready to walk out of the experiment. This seems to contradict the first argument that the stress induction was not successful. Of all twenty participants in this condition seven got up, looked out of the door, picked up their bags, got dressed and stood in the room, ready to leave or some even had left the room already, walking down the corridor when they encountered the experimenter. This behaviour, together with participants` comments about the waiting seemed to indicate that the participants were in an emotionally agitated, tense and stressful state. Nevertheless, this emotional state did not reflect in waiting stress ratings given by these participants, which were nearly as low as in the scenery art condition, in which this agitated behaviour was not observed to such an extent. From observation, the waiting stress ratings did not seem to reflect the true nature of participants` experienced stress levels.

A possible explanation for this is that participants` actions taken to end the waiting period represented a means of coping strategy to reduce the effect of the stressful stimulus, which was the waiting. Active coping procedures are employed by stressed individuals in order to reduce the experienced stress levels and to achieve a state of homeostasis or equilibrium (Lazarus & Folkman, 1984, Selye, 1979). The preparation to leave the room represented an active coping strategy, which meant taking control of the situation and this may have reduced participants` stress levels considerably, so that by the time they settled down again to complete the questionnaire, their stress levels were reduced to a great extent, which was then reflected by the low waiting stress ratings.

It may be of importance that participants in the bare wall condition, who were deprived of visual stimuli reported using their auditory senses a lot more than in other conditions. Participants in this condition reported more than in any other that they listened to people, to sounds, and to noise.

This finding may have important implications for hospital environments. Hospital environments, particularly emergency wards, have been found to be often extremely noisy places and noise has been identified as an environmental stressor (Topf, 1984). The observation that participants seemed to pay more attention to auditory stimuli, such as noise and talk, in the bare wall condition providing only a minimum of visual stimulation, compared to those conditions, which provided visual stimuli.

The implication of this finding is that noise as a stressor may potentially be reduced through the provision of visual stimuli, which could function as a distractor by capturing patients` interest and diverting their attention away from the stressful

stimulus of noise. This may especially apply for hospital places of short term patient stays, like the emergency or surgery recovery room. The short term stay would prevent patients from loosing interest in the visual stimuli too quickly, so that their effect of being an attention attracting stimulus is likely to be more efficient.

The provocative art condition did not represent the same overwhelming presence as the pleasant pictures for two reasons. Firstly, there were only four, well placed, and suitably sized pictures. Secondly, the colours of the picture were subtle and with their brown, black and grey shades they blended in with cream coloured walls of the room. The descriptions for the room with these pictures can group into two primary categories, whereby one group refers to the room in relation to the pictures as interesting, stimulating and as keeping one`s attention, while the other group refers to descriptions in terms of it being strange and unusual, indicating that it may have had a negatively coloured effect on their feelings. It appears that participants` high stress ratings are more likely to relate to the negative emotional state, which was earlier noted in the analysis of mood by the highest negative mood ratings in this condition.

It was hypothesized that the provocative art condition would produce the most unfavourable results, which overall was confirmed. The provocative art condition was found to produce the most unfavourable results with high negative mood ratings and high stress ratings. The main hypothesis of this thesis was that pleasant art may facilitate patients positive emotional states. The provocative art condition was introduced to meet possible criticisms that if art was found to benefit health and healing, perhaps not all types of art would have the same effect. The provocative art condition seemed to provide evidence that not all art should be treated in the same way. The effect of art on people`s emotional state appears to be as wide ranging and various as the style and types of art are themselves.

The finding that mood and waiting stress were positively correlated is also of importance. A positive correlation of mood and waiting stress ratings implies that more positive mood is associated with lower stress ratings and more negative mood with higher stress ratings. The provocative art condition showed the highest negative mood ratings and the highest waiting stress ratings. In the scenery and bare wall condition the more positive moods related to low waiting stress levels. The only condition not fitting this development of positive mood correlating to low stress ratings was the pleasant picture condition, which showed a mood rating similar to that in the scenery art condition, but also showed high waiting stress ratings. This discrepancy was earlier attributed to participants`s mistaken perception of the nature of the research, which made the waiting appear more stressful.

The comparison of experimental stress across all conditions revealed no significant differences between the groups. Graph 8 shows that the scenery and the

bare wall condition had the most favourable results, with low stress ratings, while the other two conditions showed higher stress ratings. This finding corresponds with the correlational analysis of waiting stress, as experimental and waiting stress have been found to be positively correlated. The explanations given for the tendencies in the waiting stress recordings appeal similarly to the experimental stress analysis.

Summary

In summary, experiment two established, similar to experiment one, that the majority of people take notice of their visual environment and that they claim to like art, whereby pleasant art was significantly more likely to be liked than provocative art. It was also established that the visual environment asserts an influence on people`s emotional state.

With respect to these findings, it seems justified to investigate the affect of art on patients in a hospital environment. Pleasant pictures have been found to have a positive influence peoples` emotional state by providing an alternative pleasant stimulus to focus attention on, hence offering distraction from aversive stimuli. As a result of this research pleasant pictures have been attributed with the potential to improve or maintain positive mood. This appears very important with respect to the finding that mood and stress ratings in this experiment were found to be positively correlated. It indicates that improved, more positive mood is associated with lower stress ratings, which have been found to contribute to increased well-being.

A further finding of this research was that artworks can influence the emotional atmosphere of a place. The emotional atmosphere, in turn, has been found to assert a strong influence on people`s emotional mood state by way of emotional contagion. A positive emotional atmosphere created by pleasant visual stimuli was associated with a more positive mood, while a negative emotional atmosphere was associated with a more negative mood. It was observed that distractors other than artworks can assert influence on the maintenance of a positive mood state in a neutral emotional atmosphere, but they seemed to lose their impact if the emotional atmosphere in negatively toned.

The research findings indicated further that visual stimuli such as paintings, which are in strong contrast and in contradiction to the expectations associated with a certain place can contribute to create a better, more positive emotional atmosphere. Another observation, relating to emotional contagion, was that the scenery pictures, described as calming and relaxing, seemed to help create a relaxing atmosphere, evoking a relaxation response. Participants in the scenery condition seemed to have been more relaxed, which was reflected in the lowest stress ratings. On the other hand, it may be noted that a negatively toned atmosphere can achieve the opposite,

namely influencing individuals` emotional state more negatively. This may be important with respect to the negligance of environmental conditions in hospitals regarding visual stimulation.

Findings in experiment two are similar to those in experiment one. It was established that artworks can influence the emotional atmosphere in places, which in turn can influence individuals` emotional state. Paintings have also been found to capture an individual`s interest and attention. In addition to this, visual stimuli have been found to influence people`s thoughts. Pleasant art, which has some meaning or to which a perceiver can relate has been found to evoke positive emotional memories and thoughts. With respect to the decoration of different wards this would implicate that children`s wards may require different visual stimuli, like childlike motives, than those wards with older patients.

Overall, after consideration of the combined findings from experiment one and two, it appears that designers of hospital environments should strive to make use of decorative features, as they seem to have the potential to improve patients` mood and thoughts thus asserting a positive influence on patients` emotional and mental state and ultimately contribute to a reduction in the stress experience.

CHAPTER IV

EXPERIMENT THREE - The assessment of the emotional state in hospital patients

1. Introduction

The preliminary studies at the University of Canterbury with university students gave an indication of the possible affect of visual stimuli, i.e. pictures, in a given environment under the stressful conditions. The results of the first two studies suggested that artworks could potentially function as an emotion regulator regarding stress experiences. Pleasant artworks and artworks described as relaxing, calming and soothing were identified as most effective for the moderation of stressful experiences and were implicated as most beneficial for improved well-being and the recovery process.

The major findings were that pleasant artworks were found to show a positive correlation between an improvement in mood and more positive thinking, both indicating a more positive emotional state, with lower stress ratings. Experiment three rested on these findings and was designed to measure and compare patients` emotional state on the basis of three questionnaires and under two different conditions. Condition one involved presenting three questionnaires to patients in rooms decorated with pleasant artworks and condition two involved presenting the same three questionnaires to patients with similar complaints and similar physical condition in the same rooms, but this time without the pictures, leaving the walls bare.

The hospital was chosen, because of the personal contacts with the Arts Advisor for the hospital, who also helped organize the pictures used in this study. This enabled the researcher to find the hospital and staff fully cooperative and supportive of the undertaking of the study. It was decided to conduct the research in a ward for short term orthopaedic surgery, because the physical environment was judged as most suitable and as facilitating such research in the best possible way.

It was decided to use three different questionnaires, because it was thought that the combined results of a range of approaches to measure patients` emotional state and well-being would provide a more reliable basis of information and would contribute to more accurate conclusions. The questionnaires were designed to measure general emotional and mental well-being and included the "Hospital Anxiety and Depression Scale" (HAD, Zigmond & Snaith, 1983), the "Emotions Questionnaire", which is also referred to as "Happiness Measures" (HM, Fordyce, 1988) and the "Affect Grid" (Russell, Weiss & Mendelssohn, 1989).

Hospitalization had previously been associated with negative emotional mood states, such as expressed by stress, anxiety and depression. The "Hospital Anxiety and Depression Scale" had been found useful in detecting mood disorders of a milder nature, such as those likely to occur in hospital patients. It is a fourteen item scale with seven items referring to feelings of anxiety and seven items to the state of depression. The HAD scale provides sentences, which have to be answered on a scale of options ranging from not at all true to extremely true. "I feel cheerful", or "Worrying thoughts go through my mind", constitute examples of sentences used in the HAD scale.

It was decided to extend the number of possible answers to these questions from four, as suggested by the original authors of the scale, to seven, using a seven point Lickert scale (1 standing for not at all true, 4 for moderately true, and 7 for extremely true). It was thought that offering a wider range of scoring opportunities would allow patients to express their thoughts and feelings about the questions and answers slightly more accurately, compared to a four point scale.

The HAD scale is characterized as being comprehensible and easily completed (Aylard, Gooding, McKenna & Snaith, 1987), which seemed of importance, as the research was to be as uncomplicated and unobtrusive as possible for the participating patients. Overall, the HAD scale seemed to provide an appropriate measure in this research. Respecting this scale, it was hypothesized that the art condition, showing pleasant artworks, may possibly counteract or reduce any probable signs of anxiety and depression.

Earlier, happiness was indicated as a measure of well-being (Diener, 1984). The "Emotions Questionnaire" or otherwise referred to as "Happiness Measures" (HM) is a simple two part self-report scale designed to measure emotional well-being. The first part asks participants to rate how happy they usually feel. On a scale from 0 to 10, 0 standing for extremely unhappy and 10 for extremely happy, they are required to tick one box next to the most applicable description of their perceived state of happiness. The second part requires participants to rate in percentages how happy, unhappy or neutral they feel on average.

The Emotions Questionnaire has been found to be a reliable and stable instrument, with high validity and consistency in comparison to many other well-being measures (Fordyce, 1988). The scale also had the advantages of being very simple and easy to administer, of being brief, and of being easy to score, which all seemed to speak in favour of this instrument. Altogether, the Emotions questionnaire seemed a most suitable means of assessment in this research. It was hypothesized that the presence of pleasant artworks could possibly contribute to higher general happiness ratings and lower unhappiness ratings.

The "Affect Grid" measures the emotional state along the two dimensions of pleasantness and arousal. Pleasure has earlier been identified as an important factor in the conception of emotion (Russell, 1978). The appraisal of stimuli as pleasant, for example, had been associated with a positive emotional response. In a similar vein, arousal was stipulated as a component of emotional experiences and is here assessed on the basis of a self-report relying on the subjective perception of feeling.

The Affect Grid is a single item scale designed to provide a quick means of assessment of affect. It was suggested that the Affect Grid constitutes a reliable and valid measure, suitable for the assessment of affect and mood states. It is also fairly brief, once the slightly complex instructions have been read and understood. Overall, this questionnaire seemed a valuable addition to the other two and it was hoped it would contribute to a deeper insight to patients` emotional state. Similar to the first two questionnaires, it was hypothesized that patients in the pleasant artwork condition may achieve higher pleasantness ratings and more moderate levels of arousal.

2. Design

The experiment is a single factor design between participants. Each of the two conditions 1) decorative condition - twelve high quality framed prints depicting a variety of motives reflecting a pleasant and positive nature, 2) bare wall condition represent the independent variable, and the emotional measures the dependent variable.

3. Method

Participants

The participants were forty patients at Burwood Hospital in Christchurch, New Zealand. All participants were volunteers. They were selected on the basis of being admitted to Ward 6 in Burwood Hospital, which was chosen as experimental ward for its perceived suitability. Patients admitted to this ward were undergoing orthopaedic surgery, like hip- and joint-replacements and were expected to stay between three to ten days in this ward.

The participants were of varying age with the majority being past middle age. Of all participants tested, fifty-seven and a half percent were female and forty-two and a half percent male. In condition one (decorative) seventy-five percent were female and twenty-five percent male, in condition two (bare walls) sixty-seven percent were male and thirty-three percent female.

Materials

1) Eleven single-bed rooms in a hospital, each with a window. All windows were facing the same side offering very similar views for all tested patients. Through the window patients could see other parts of the hospital, mainly lower buildings, the sky and some tall trees. All rooms were furnished in a similar fashion, containing a bed, several chairs, a bedside cabinet, a small narrow wardrobe, some shelves, a hand wash basin, a mirror and a movable table on wheels. All rooms featured a very subtle, pastel-coloured wallpaper with very discrete patterns, which showed signs of aging and discolouring. Initially, no room had any decorative features on the walls.

2) Twelve high quality, framed prints of original artworks. The pictures were of varying size, the smallest being approximately 0.50 m x 0.60 m and the largest approximately 0.90 m x 1.20 m. Most pictures, however, were of similar, moderate size. The pictures represented a range of themes from still life, to idyllic landscapes, to some Mediterranean themes of landscape, to flower motives and outdoor scenes, some including animals or buildings. They were primarily of a subtle colour composition, avoiding extremely strong vibrant colours as well as pictures in primarily dark colours. All pictures were chosen by the experimenter and the Arts Advisor, because they seemed to be pleasant and to reflect a positive mood.

The decision to use high quality prints in this experiment, instead of genuine paintings, as had been used in experiment one and two, was due to the restricted availability of the pictures. It was not possible to organize the large amount of suitable genuine paintings needed to conduct the research in the hospital within a given time. On the other hand, a local art dealer was so kind to make the large amount of prints needed available for the duration of the research. So, in order to keep the extraneous variables under control, it was decided to use prints only, rather than mixing genuine paintings with prints.

3) An information sheet about the nature of the experiment to be presented to participants.

4) A consent form for participants, to be signed if they consented to take part in the research.

5) Three questionnaires: a) The Emotions Questionnaire - Copyright: Dr. W. Fordyce, 1988

b) The Affect Grid - Copyright: J.A. Russell et al., 1989

c) The Hospital Anxiety and Depression Scale - Copyright: A.S. Zigmond & R.P. Snaith., 1983

Procedure

Ward six incorporated eleven single rooms, in which patients were placed after their immediate recovery from surgery in the surgery recovery room. Here most patients would reside for most of their stay. None of the rooms had any picture in them to begin with. With the commencement of the research all but one of the eleven rooms were decorated with one suitably sized picture. One room was decorated with two smaller sized pictures, because no larger picture was available. All pictures were hung on the wall at the foot of the bed, so patients had a good view of them from their bed. In every room the window was situated on the wall left to the bed and the picture, so that the lighting on the picture and their exposure would have been similar in all rooms and similar for all patients.

All the patients were approached on the third day after having had surgery, while resting in their single-bed room. It seemed important to approach all patients on the same post-surgery day, as this was expected to raise the chances of finding the patients in a similar physical and mental condition. All patients would also have spent exactly the same amount of time in the experimental rooms, which would have helped to ensure that possible differences in the data would not reflect differences in the amount of time spent in the hospital.

The patients were first approached by the nurse facilitator of the ward introducing the experimenter and asking them if they would be happy to talk to her. After this she would leave the room. The experimenter would then briefly explain what would be involved for the patients and hand over the Information sheet, the consent form and the three questionnaires. She would then take a seat near the bed of the patient.

Initially, it was thought best for the experimenter to leave patients alone in the room while completing the questionnaires in order to avoid any contamination of the results by conversing with participants. This approach, however resulted in low compliance and was aborted after consultation with the project supervisor.

The presence of the experimenter during the completion of the questionnaires seemed of great importance from the aspect of patients` need for socializing. It may be noted that patients often experience the social isolation from their familiar social environment through hospitalization as stressful and appear to have a need to replace it with new contacts (Rosenberg, Peterson, Hayes, Hatcher & Headen, 1988, Teichman, Ben Rafael & Lerman, 1986, Volicer & Bohannon, 1975).

The presence of the experimenter also seemed to motivate participants more as well as giving them a feeling of having help available if needed. Many of the patients had needles in their hand or were physically weakened and thus not capable of writing by themselves. The experimenter`s assurance to patients that she would

stay in the room with them in case they had any questions or needed some further explanation or help with writing led to nearly one hundred percent compliance.

The information sheet would inform patients about the status of the experimenter and the reason for the research. It would outline the task and the time it would involve. Further, the nature and magnitude of the research as well as possible consequences would be explained. Patients were assured that their participation was voluntary and that their refusal to take part in the research or a possible decision to discontinue the research would be not entail any negative consequences for them. It would be mentioned that the results of the research could be published, but that participants` anonymity was ensured. Participants were given the experimenter`s and the project supervisor`s contact phone numbers, as well as an independent contact, in case they wished to discuss any concerns about the research. Lastly, participants were informed that the research had been approved by the Southern Regional Health Authority Ethics Committee.

After participants had read the information sheet, they turned to the consent form, which was read and signed if the conditions were understood and agreed to. The consent form offered an opportunity for participants to indicate, whether they would like to have a copy of the results forwarded by writing their address in the provided space.

Next, participants would answer the questionnaires, which were presented in exactly the same order to all participants. It was decided to present the "Emotions Questionnaire" first, because it was thought that its simplicity would encourage participants to continue. The "Affect Grid" was chosen in second place, because it seemed slightly more complex with its instructions, but was nevertheless also very brief. The "Hospital Anxiety and Depression Questionnaire" came last, because it was longest. It was thought that the presentation of a long questionnaire earlier may have elicited fears of possible exhaustion in participants, if they thought all questionnaires were as long as this one.

The experimenter would watch over the participants and answer any questions or explain the task if they were unsure of it. Many participants felt that they wanted to make more comments than just answering the questions. In these situations she would try to respond in a manner that would not influence the eventual answer. At the completion of the last questionnaire the experimenter would thank participants for their help and leave the room with best wishes for their recovery.

The same procedure was applied in both experimental conditions. With all factors being equal, the only difference being the presence of pictures in one condition compared to bare walls in the second condition.

4. Results

Emotions Questionnaire

It was of interest, whether this questionnaire would produce any differences in happiness rating in patients in the two different conditions. The two most important values in this questionnaire were the general happiness and the percentage of the time patients felt happy in contrast to being unhappy or neutral

The analysis of variance (ANOVA) looking at all values of this questionnaire did not result in any significant differences in any of the patients` ratings. In fact, the general happiness ratings were identical in both conditions. The other ratings showed also very close results.

The general happiness ratings were at the top end of the scale, indicating patients to be generally very happy. Within each condition, there were a similar amount of individual differences noted, with a few patients scoring a the low end of the scale, indicating their unhappiness, while most would score at the top half of the scale indicating their happiness.

The percentage values supported the notion of patients being generally very happy, as the percentage for happiness was recorded between seventy and seventy-five percent, while the percentage for unhappiness only showed around twelve percent in both conditions indicating little unhappiness.

The Affect Grid

This questionnaire aimed at establishing, whether patients would show differences in their perception of personal arousal levels and whether one condition would produce more favourable pleasantness ratings compared to the other. The analysis of variance (ANOVA) did not result in any significant differences. The Pleasantness ratings were even found to be identical in both conditions and the arousal ratings were both very similar.

The pleasantness ratings achieved a higher than moderate value, whereby on a scale from one to nine, the average score was close to seven, indicating a fairly pleasant emotional state in the patients of both conditions. The arousal levels were on average rated close to the moderate middle value of five on a scale from one to nine. The higher pleasantness ratings could possibly be a reflection of this result.

The Anxiety and Depression Scale

It was of interest to establish whether there would be any differences in signs of anxiety on depression between patients in the two conditions. An analysis of variance (ANOVA) did not result in any significant differences between the two conditions. Overall, most patients scored for both anxiety and depression at the lower end of the scale. This indicated that patients showed very little signs of anxiety and also very little signs of depression. Although some individual differences could be noticed, these occurred in both conditions at a similar rate, and were thus not regarded as having influenced the results negatively.

5. Discussion

The results showed no significant differences in any of the questionnaires between the two conditions. This indicates that the pictures in the art condition did not have any effect on the improvement of subjective well-being measures. However, the results of the bare wall condition showed fairly high well-being measures and considering the magnitude of surgical intervention for the patients, it would appear difficult to conceive that the well-being measures could have been any higher or could have been improved through the presence of pleasant artworks.

With respect to the observation of the well-being measures being fairly high in the bare wall condition, it seems of interest to identify some possible factors, which may have contributed to such positive outcome of patients` emotional state. The following discussion will investigate factors that may have contributed to a reduction in the stressful and negative emotional experience of hospitalization for the patients in this experiment.

It may be noted that the patients in this research had orthodaedic surgery in form of hip- and joint replacements. These patients were most likely to have known for some time that they would go into hospital at a certain date. Knowledge and expectation have been associated to perceived control and perceived control was related to a reduced stress experience (Veitch & Arkkelin, 1995, Katz and Wykes, 1985).

Hospitalization for these patients did not come as a surprise and therefore the shock-factor of a sudden and unexpected hospitalization, as often experienced by many patients being admitted to a general public hospital for example, could have been reduced. Patients also knew the nature of their complaints and this could have reduced the possible stress factor of uncertainty and fear about the nature of their illness, which many patients may experience in public hospitals (Taylor, 1990, Volicer & Bohannon, 1975).

Many patients reported having been in hospital before, either having had a replacement on the opposite side, or having had several adjustment operations or orthopaedic corrections. This would further enhance patients feeling of being in control through being able to predict events. As already outlined earlier, studies in medical settings had found that stress experiences can be reduced by providing patients with information about the procedure, thus enabling them to make better predictions (Johnson & Leventhal, 1974, Taylor & Clark, 1986).

In essence, the stress factor of hospitalization may have been reduced for participants in this experiment by knowing about the nature of the complaint, by having had time prior to the hospitalization to prepare themselves for the upcoming event and perhaps through having experienced a similar operation previously, enabling them to make more accurate predictions. The patients also knew the approximate duration of their stay in hospital, which would have further eliminated uncertainty.

The patients in this research were tested on the third day after surgery. Concerning the results of the " Hospital Anxiety and Depression Scale" , it is possible that anxiety and depression may have occurred in these patients before the operation. These patients went into hospital to have a type of surgery, which would hold the promise of improving their lives through eliminating pain and discomfort from their lives. The patients were mostly elderly folk and were likely to have been depressed as a result of a physical impediment. The verbal reports of patients supported this notion, as they often commented that they were looking forward to a life without pain and to being able to do things again and that they were happy they had the surgery finally done.

Similarly, it could be suggested that these patients may have felt more anxious before the surgery, but may have felt relief after the surgery was over. Verbal reports would also support this notion, as many patients emphasized that they had not as much reason to be scared or anxious after the surgery had been completed successfully as they might have had before. However, there were some patients, who reported to be anxious about the future and apprehensive about how they would be able to cope, once they left the hospital and were left on their own without the help of the nurses. In retrospect, the presence of the nurses and the perceived safety of the hospital environment with respect to available help could also have contributed to lower anxiety rating if patients related the ratings to their present situation rather than to the near future.

In conclusion of the measurements of the HAD scale, it appears that the type of patients and the nature of the treatment in the experimental ward contributed to a great extent to the positive ratings of emotional well-being. In a general medicine ward in a public hospital, where patients may have been taken by surprise regarding

their hospitalization, having had little time to prepare themselves for the event and possibly having little knowledge about the nature of their illness and the possible outcome of treatment, the administration of the scale might have produced quite different results.

The positive measures in the "Emotions Questionnaire" can be viewed in a similar way to the positive ratings in the HAD scale. Knowledge about the likely outcome and effects of the surgery on patients` lives seemed to play an important role in their well-being, giving them hope for a more comfortable trouble-free life. The verbal reports of patients indicated that they were very happy that the waiting was over and that the operation had finally been done as well as that the physical discomfort and the pain were hopefully soon over enabling them to lead a more "normal" life again.

Other factors, which might have played an important role in participants` happiness rating were related to the care they were receiving from the staff, and to the good catering. The majority of patients in both conditions commented on the high quality of care they were receiving from the nurses and doctors in this ward. The nurses were frequently described as very friendly, responsive, helpful and as doing everything they could to make the patients feel comfortable and good. The positive approach and attitude of the nurses towards the patients could have contributed to a positive emotional atmosphere. The positive emotional atmosphere of the ward could have added to patients` positive perception of their emotional state and high degree of happiness by means of emotional contagion.

Nutrition is not to be overlooked in its importance to help patients recover from illness as well as contributing to their happiness. The choice and quality of the food and its presentation play a part in patients` responses to the meals. A dislike of food could lead to malnutrition and weaken patients, thus impeding the recovery process and their feeling of satisfaction with the hospital. Catering was mentioned by nearly all of the patients in a positive way. Some patients went as far as to rate the hospital as the best in comparison to other hospitals in which they had been.

It was earlier suggested that overcrowding and a lack of privacy could increase the stress experience in hospital patients (Ronco, 1972). Patients participating in this research were staying in single-bed rooms, protecting their privacy and private space, which could have contributed to a reduction of the stress experience and increased happiness ratings.

Overall, the positive ratings of the "Emotions Questionnaire" seemed to relate to the knowledge about the likely positive effects of the surgery and the hope of an improved well-being after the surgery. Furthermore, it seemed that the positive social environment in relation to the positive nature of the care giving nurses and doctors had a strong influence on the positive experience in this ward. Last, but not least the

positive approach to the catering for the patients seemed to add to patients perception of increased happiness in this experiment.

The "Affect Grid" produced very favourable results with respect to patients` well-being. In both conditions the arousal measurements showed on average a healthy moderate level of arousal. This is of interest in the context of earlier contentions that excessively high or excessively low levels of arousal would have a negative affect on an individual`s well-being. The fairly high pleasantness ratings seemed to correspond with the moderate levels of arousal. It was earlier mentioned that more moderate levels of arousal were found to be positively correlated with a more pleasant emotional experience.

The ratings for the Affect Grid seemed to have been given by patients` with close reference to the medication they were taking. In completing the questionnaire many patients verbally commented on the affect the drugs they were taking had on them. Some patients reported feeling sleepy on taking the drugs, perceiving low levels of arousal, while others reported feeling fairly aroused on taking the drugs, perceiving high levels of arousal. The situational factors also seemed to play a role in the arousal ratings. Some patients may have been approached while resting in their bed with their eyes closed, while others were approached after they had come from their first walk. However, the majority of participants reported feeling a moderate level of arousal and feeling very pleasant either as a result of the drugs reducing their pain or as a result of the many other factors described so far.

In conclusion to the findings concerning the Affect Grid, it can be said that the moderate average level of arousal and the fairly high average ratings in pleasantness seem to complement and enhance the positive results of the other two questionnaires. There was no evidence or indication that the presence of the pictures had any influence on patients` perception of their arousal levels in comparing the bare wall with the decorative condition. The presence of the pictures also had no effect on participants` arousal levels.

The finding that the manipulation of the hospital environment with pleasant pictures did not have any positive influence on participants` emotional state was contrary to the hypothesis. The preliminary studies at the University of Canterbury indicated that the manipulation of the visual environment through the introduction of pleasant artworks could assert a positive influence of participants emotional state.

Apart from the factors already discussed, there are two other major differences between these experiments that might have played a role, namely the nature of the pictures and the nature of the room. The experimental conditions at the University involved genuine artworks painted in water colours or oil as opposed to the prints used in the hospital experiment. It is conceivable that this difference might have influenced the results.

It was earlier suggested that the creation of a piece of art involves an artist`s emotions prior to and during its creation. A resulting artwork is consequently described as representing an expression of emotion (Sankowski, 1976). The emotional response at the encounter with genuine art, the aesthetic response, is suggested as analogous to well-being (Spitz, 1982). On the basis of these contentions referring to the very high emotional input into and effect of genuine artworks it may be suggested that the same contentions may not apply to mass-produced prints of genuine artwoks. It is possible that the emotional impact of genuine artworks on individuals is not paralleled by quality prints. Perhaps an explanation for the missing impact on patients` emotional response to the prints in the hospital experiment could be sought in the difference between genuine artworks and prints.

However, it has also been suggested that emotional responses relate to the content of the artworks (Vygotsky, 1971). If "content" refers to the nature of the motives of the pictures, then both the genuine artworks and the prints should have had a similar affect, as the content was similar with respect to pleasantness and colour schemes. This implies, that if content, understood in this way, is of more relevance for the emotional experience than other aspects of the picture, than the nature of the picture, i.e. genuine artwork or print, may not be as important as suggested above.

With respect to this contention, it may be noted that many people appear not to be very good at distinguishing between genuine artworks and prints. In experiment one and two many of the participants referred to the genuine paintings as prints. For this reason it seems unlikely, but nevertheless possible, that the difference in the type of pictures can account for the lack of positive emotional impact.

Another aspect that may have contributed to the difference in the emotional impact of the pictures in the first two experiments compared to experiment three may be that there were several pictures representing distractors in the first two experiments, but only one single picture in the hospital experiment. It is possible that the difference in the amount of pleasant visual stimulation may have effected the results. However, it would probably be unrealistic to expect hospitals to provide more than one picture per single room even if pictures were shown to counteract stress experiences in patients.

A much more significant factor contributing to the apparent lack of emotional impact of the pictures in the hospital experiment may be found in the differences between the physical environments in the experiments. The experimental room in experiment one and two was windowless, providing extremely few visual stimuli in the bare wall condition and except for the pictures extremely little extraneous stimuli in the art conditions. The experimental rooms in the hospital experiment, however, all had a view through a window. From their beds patients could see the blue sky, birds

flying past, the sun and clouds moving, as well as the tops of very large pine trees, often swaying in the wind and reflecting the sunlight.

It was mentioned earlier that views of natural scenes have a therapeutic effect on individuals, evoking a relaxation response, reducing arousal levels and moderating the stress experience (Ulrich, 1979, 1984). A view of natural scenes from a window was reported to have had positive affects on patients recovery process, incorporating shorter post-operative stays, slightly lower scores on post-surgical complications and evoking more positive comments from nurses on patient behaviour (Ulrich, 1984). It seems that the fact of the experimental rooms in the hospital having had a view through a window, providing natural scenery, may have been a factor in influencing the positive emotional experience in participants in this experiment.

The pictures on the wall may have initially captured patients attention and interest, but this effect may have worn off after a while, because in contrast to real life natural scenery they are static. The view through the window, however, would have offered at least some change and movement most of the time with respect to the traveling clouds, sun, birds and moving trees and may have thus been able to capture the attention and interest much longer than a picture would have been able to do. The strong visual stimulus of the view through the window is most likely to have contributed to the weakened affect of the pictures on patients emotional experience in this experiment as well as it would most likely have contributed to the overall positive emotional response in the participants of experiment three. A window with a view may also contribute to a positive emotional atmosphere in the room, earlier identified as having a positive affect on patients emotional state.

The implication of this finding is that the visual stimulus of a pleasant artwork may have an important function and a positive effect as an emotion regulating stimulus in an environment that does not offer other attention attracting visual stimuli. It appears that attention and interest are paramount in determining the impact of visual stimuli on an individuals emotional state. Pleasant artworks may have the greatest emotional effect in places without other competing attractive or interesting visual stimuli, as for example a view of natural scenes through a window. They may lose their impact as emotion regulators if other attention attracting stimuli are present.

However, it seems important to mention that most patients commented positively on the pictures in the room. The pictures were often described as pleasant, beautiful, wonderful, calming and relaxing by patients and nurses alike. Some patients even reported to have walked along the whole ward into every single room in order to have a look at all the pictures. The nurses` and patients reaction to the pictures was overwhelmingly good. They all reported loving having them up on the wall, not only because they looked good, but also because they noted that the pictures gave them and the patients something to talk about. The pictures were said to "lighten up" the

place and to make it more friendly. Another interesting finding was that many patients in the bare wall condition hung a picture of their own, like a drawing from a grandchild or a greeting card, on the hook that was left in the wall after the pictures had been removed.

The observations above indicate that the pictures were received by patients and staff very positively and they did seem to fulfill some positive function with respect to emotional responses. Nevertheless, these positive responses could not be measured and therefore these anecdotal remarks concerning the pictures do not have any great significance for this research.

Summary

To summarize and conclude experiment three, it may be suggested that the significantly different experimental conditions in the hospital research of experiment three compared to those in the University research of experiment one and two were responsible for the finding that the pleasant artworks did not have the anticipated effect on participants emotional state. The patients participating in this research did not seem to evidence high emotional stress as it had been suggested to occur in hospital patients. Participants` general well-being was recorded as being fairly high. This seemed to be influenced by the type of patient tested in this experiment.

The fact that the patients in this research presumably had had sufficient time to prepare themselves for the event might have influenced their emotional response to hospitalization. There seemed to be evidence of a reduced stress experience, which in itself would have reduced the impact of the manipulation of the environment with pleasant visual stimuli. With respect to this observation, the chosen hospital, performing the type of intervention these patients experienced, i.e. orthopaedic surgery, may not have been ideal for this research, but it was all that could be made available.

Further matters possibly reducing the stress experience of patients in this hospital, but particularly in this ward, were the very good care and the positive approach of the staff towards the patients, offering important social support. The friendly and helpful attitude of the staff would have given a feeling of safety and helped to create a very positive emotional atmosphere, thus reducing the stress experience.

It is also possible that the inevitable presence of the experimenter may have further contributed to a positive atmosphere, as many patients seemed very happy to have company giving them the opportunity to talk. Other factors, contributing to good care were good catering, single rooms, and a view through a window.

In particular, the view from the window could have contributed to a very positive emotional atmosphere and could have represented an effective distractor. In combination with all other factors, it appears that the experimental conditions were not ideal for the research. However, it is interesting and important to have found some confirmation for the variety of factors identified in the introduction as potentially asserting a positive influence on patients` emotional experience.

In conclusion it is clear that the stress experience could not be controlled in experiment three. The research was based on the notion that hospitalized patients would be very likely to experience a stressful and negative emotional state. However, there appeared to have been too many extranaeous variables influencing the stress experience and consequently the results of this research. The extraneous variables seemed to have functioned as a moderator to the probable stress experience in the event of hospitalization. This led to inconclusive results with respect to the influence of the artworks on emotional state.

It is possible, however, that pictures may nevertheless have an important function as a distractor and emotion regulator in places and situations where patients face aversive stimuli, to do with medical intervention for example, and where the stress experience is more likely to occur. Moreover, there are many places in hospitals where patients do not have an attractive view, like long hall ways and corridors and treatment rooms or all areas of activity in the basements of hospitals. For these places, pictures may still have an important function as an emotion regulator.

CHAPTER V

SUMMARY & CONCLUSION

1. Summary

The ever increasing costs of the modern health care system necessitate careful financial management of steadily decreasing Government funds without jeopardizing patients` welfare. Over the past decade technological developments have led to a very sophisticated approach to illness diagnosis and treatment, but escalating costs force the medical profession to reconsider their approach to health and illness.

Historically the biomedical model dominated health professionals` conception of health. It implicated an understanding of body and mind as separate entities. Illness was regarded as a dysfunction of a part of the bodily mechanism. The task for medical professionals was to identify the dysfunctional body part and "repair" it. This approach seemed to have served well in the past, but it appears now no longer sufficient for the efficient treatment of patients, because of the fast changing patterns of illness.

While traditionally medical complaints were sought to be cured with reference to biological and physical causes, it is becoming more apparent that many causes of disease, illness and death are strongly related to modern lifestyle habits. The more recently emerged branch of health psychology is taking a more holistic approach to health adopting a so called biopsychosocial model of health. This model emphasizes a number of underlying factors, such as emotional and social as well as biological influences on health. This contributes to a more comprehensive understanding of illness. In essence, the biopsychosocial model points to the importance of the treatment of the whole person, i.e. body and mind simultaneously, in order to achieve the best treatment results and foster well-being.

The emotions have been identified as playing a major role in well-being. Emotions have an important function with respect to the motivation of action and the adaptation to environmental demands. The emotional responses elicited through the perception and appraisal of a stimulus motivate an individual to engage in coping mechanisms aiming at asserting influence on the stimulus. However, some situations seems to exhaust an individual`s coping abilities resulting in a stressful emotional experience.

Stress is often understood as constituting a negative emotional state. Moderate levels of stress were considered good, but high levels of stress over a prolonged period of time have been associated with negative health consequences. Stress is the result of an individual`s inability to successfully cope with emotional

responses to stressors. It is characterized by behavioural, cognitive and bodily changes involving an increase in physiological arousal.

Emotional arousal can lead to a disruption of the homeostatic state of the body indicated by a chemical and hormonal imbalance. This imbalance can debilitate the immune system leaving the body vulnerable to illness and disease. In the same vein, stress experiences adding extra strain on a body already weakened by illness, can impede successful recovery.

However, a more positive emotional state indicated by reduced levels of stress has been associated with improved well-being and improved recovery from illness. Considering this observation and keeping the high costs associated with hospitalization in mind, it appears that an attempt to reduce stress experiences could be of advantage for individuals personally by improving their well-being. However, concurrently, a reduction of stress experiences in hospital patients could facilitate faster recovery from illness and save costs.

There are many sources of stress, as for example major life events like the event of sudden illness and hospitalization. Hospitalization represents a multitude of factors that can contribute to an intensified stress experience in hospitalized patients. The fear of the diagnosis and prognosis of treatment outcome and physical pain, the unfamiliar surroundings, the isolation from the regular social environment, feelings of helplessness and being out of control are just some examples of stress eliciting factors. Daily hassles are also implicated as a source of stress as well as exposure to unknown and uncertain events, which can elicit fear and anxiety.

Environmental conditions can also represent potential stressors. Emotional arousal was said to be an integrative part of the perception of environmental stimuli. Specifically hospital environments can incorporate many stimuli identified as possible stressors. Noise, temperature, light, smells, architectural designs, attractiveness and crowdedness are only some examples of recognized potential stressors.

While some environmental stimuli can be aversive representing potential stressors leading to a negative emotional experience, other environmental stimuli identified as pleasant have been found to reduce stress experiences. Therapeutic environments are environments representing pleasant stimuli facilitating positive emotional responses. Features helping to create a positive image in a place as well as comfort and convenience can contribute to a therapeutic environment.

Certain visual stimuli like pleasant, attractive and interest eliciting features, as for example the visual arts could represent, have been found to have an emotion regulating capacity, leading to a reduction in negative emotional experiences through facilitating and encouraging positive emotional experiences. Traditionally, however, the emphasis in public hospitals has been on purposeful and functional design with little emphasis on pleasing features.

Therapeutic environments constitute just one of many moderating factors to the stress experience. Individual differences, incorporating personality factors and aspects of personal hardiness for example, have been identified as a moderator to stress experiences, accounting for the fact that not all individuals experience a negative emotional response when confronted with a stressor. Furthermore, actually being or perceiving to be in control, social and spiritual support, relaxation as well as improved mood and positive emotions are all identified as having a moderating affect on the stress experience.

Hospitalization places a restriction on many of the moderating factors. Apart from personality factors and hardiness, which inherently cannot be easily influenced, there is often a problem with patients assuming control, with the social and spiritual support net and with opportunities for relaxation, either due to environmental conditions or to ability.

Stress experiences lead an individual to engage in problem or situation focused coping or in emotion focused coping, or both. There are many limitations to problem focused coping in hospitals often leading hospitalized patients to engage more in emotion focused coping involving strategies like denial, rumination or attention diversion and distraction. Often the former two represent unsuccessful coping techniques, while the latter can be effective in certain situations.

To summarize, hospitalization was identified as representing a stressful negative emotional experience for many people due to a large variety of factors. Prolonged or intense stress experiences were associated with negative health consequences and slower recovery from illness. Hospital stays are costly and extended hospital stays are neither in the interest of the patient nor the health care system. It would therefore seem in the interest of all involved to cut down the time of hospital stays. A possible avenue appears to be through a reduction of patients` stress experiences and the improvement of patients` emotional state, thus facilitating well-being and faster recovery.

With respect to the restrictions on factors that moderate stress experiences and to the successful application of coping mechanisms for patients in hospitals, it was suggested that the potentially positive influence of the environment on patients emotional state may deserve more attention. Since major redecorations are often very expensive, the focus of this thesis was to investigate the affect of visual artworks, which are easily installed, on patients` emotional state. The hypothesis was that pleasant visual artworks may counterbalance and reduce patients` stress experience and facilitate an improvement in well-being thereby possibly reducing hospital stays.

Three experiments were conducted. Experiment one and two, the so called preliminary experiments were conducted at the University of Canterbury with University students. Experiment three was conducted in a hospital with patients. The

preliminary experiments involved stress inducing students in four different visual environments and assessing their emotional state by various means. There were three art conditions with genuine artworks and a bare wall condition. Two of the art conditions represented pleasant art, one showing colourful motives and the other more subtle coloured landscape and scenery motives, the third art condition represented provocative artworks in darker colours.

Experiments one and two both indicated that individuals generally take notice of their visual environment and most participants also claimed to have an interest in art, whereby pleasant pictures were significantly preferred to the provocative pictures. The implication of these findings was that the decoration of a bare environment with visual arts is most likely to attract attention and that may prove useful in stressful situations with respect to coping mechanisms outlined earlier.

Experiment one established that the different visual stimuli did not counteract the physiological measures of stressful arousal, but did seem to asserts influence on the subjective stress ratings of students. The paintings in the scenery condition, rated as relaxing and calming, seemed most beneficial to participants` emotional state, showing the lowest stress ratings. The colourful pictures, described by participants as happy and cheerful, were found most effective in improving participants` mood state.

Complex stimuli and stimuli with a high information rate were found to represent powerful distractors facilitating avoidant coping through offering an alternative stimulus for the diversion of attention away from stressful stimuli. However, findings suggested that in certain situations they may constitute a stressor in themselves hindering relaxation.

The bare wall condition was associated with the highest stress ratings, indicating that the impact of the stressful stimulus is greatest when there are no other attention attracting stimuli to which an individual can turn for attention diversion. This suggests that the provision of attention attracting stimuli may help to counteract stress experiences.

The results in experiment two showed that pleasant paintings seemed most effective in improving more negative or maintaining positive mood in participants. Both pleasant art conditions resulted in positive mood with low stress ratings suggesting a positive mood/stress correlation. The findings further suggested that the paintings may have influenced the emotional atmosphere of the experimental room and further that the emotional atmosphere of a place has an impact on an individuals` mood. Scenery pictures for example were identified as having the potential to create a positive and relaxing emotional atmosphere evoking a relaxation response, consequently resulting in the lowest stress ratings in this condition.

Places with a negatively toned emotional atmospheres through unpleasant visual stimuli were found to result in high stress ratings. This seemed particularly

interesting with respect to individuals` efforts to distract themselves from the unpleasant visual stimuli. Distracting stimuli other than the artworks, were found to facilitate the maintenance of a positive mood state in a stressful situation in a positive emotional atmosphere, but they seemed to lose their impact in a negative emotional atmosphere.

Experiment three, testing the emotional response of patients in a hospital to high quality print pictures, did not provide confirmation for a positive emotional impact of pictures as there were no differences found between a pleasant picture and a bare wall condition. The patients in both conditions of this experiment showed low levels of stressful emotions such as anxiety and depression, but scored fairly high in ratings of pleasantness feelings and happiness. Overall, the positive results gave the impression that there would have been little room for the improvement of participants` emotional state through pleasant pictures on the wall.

The type of hospital and patient, the initially positive emotional atmosphere resulting from a positive attitude of the staff towards the patients and the excellent care patients received, were identified as just some reasons and contributing factors for the generally positive emotional state of the participants in this experiment. The presence of the experimenter during the completion of the questionnaire might also have influenced the results. However, most influential in the apparent diminished effect of the pictures on patients` emotional state may have been the fact that every experimental room had a view from a window.

It is very likely that the view through a window contributed to a very positive emotional atmosphere, already identified as beneficial to the reduction of stress experiences, as well as providing a powerful distraction. The life scenery of trees, clouds, the sun, birds and so forth offered a constantly changing stimulus and this may have drawn more attention and created more interest than a static picture on the wall. Overall, it was concluded that the stress experience could not be controlled in experiment three. The large number of extranaeous variables influencing participants` stress experience seemed to account best for the results. The extraneous variables functioned as a moderating factor to the anticipated stress experience. Nevertheless, verbal reports of patients and staff and the experimenter observation indicated a very positive response towards the pictures.

2. Conclusion

This thesis sought to answer the question whether the visual arts can benefit health and healing. The investigation followed the path of the biopsychosocial conception of health. This implicates the importance of psychological and emotional well-being in the successful treatment of physical illness. Well-being was suggested

as being positively correlated to measurements of positive emotional states expressed in happiness, pleasantness and positive mood. On the other hand illness is related to negative emotional states expressed through unhappiness, depression, anxiety and stress.

The specific focus of this thesis was on hospitalized patients` emotional state. However, two introductory experiments, investigating the effect of different artworks in stressful situations, were conducted at the University of Canterbury with University students. The main question guiding the research was whether the visual arts could counterbalance and reduce stressful experiences and whether the visual arts could facilitate more positive emotional states.

The research at the University, with well controlled conditions, indicated that pictures can assert an influence on the emotional atmosphere of a place. Pleasant pictures, such as scenery and landscapes, which could be described as calming and relaxing, seemed to influence the emotional atmosphere of the experimental room positively, while provocative art or art described as reflecting a negative mood had the opposite effect.

The emotional atmosphere of a place has been identified as an important factor in an individual`s emotional experience A positive emotional atmosphere was associated with lower stress rating and more positive mood, while a negative emotional atmosphere was associated with higher stress ratings and negative mood. Vibrant and colourful artworks have been found to be particularly beneficial for the improvement of mood. Furthermore, artworks have been found to influence thought and memory, whereby pleasant artworks, meaningful to their perceiver, tended to evoke more positive thoughts and memories, indicating a more positive emotional state.

Experiment three did not confirm any of the results obtained at the University research. No differences were found in participants` emotional state when comparing the bare wall with the art condition. This was thought to be due to the many extraneous variables influencing the participants` emotional experience. The artworks were perceived very positively by all those frequenting the ward, but this response could not be measured with the questionnaires chosen to assess the emotional state in participants.

The results of this research are not conclusive and it would appear too early to generalize the findings of the University experiment. The hospital research did not confirm the notion that the visual arts could counterbalance the stress experinece and improve patients emotional state. Nevertheless, the major findings of the University research indicate that the visual arts may indeed have a very important role as emotion regulating force in certain situations. The task of future researchers may be to

investigate the affect of artworks on hospitalized patients` emotional experiences in more controlled hospital situations.

Future researchers may also want to consider asking participants direct questions concerning the environment. It seems important to identify a means by which emotional atmosphere and its relation to mood can be tested. The subjective stress experience may not be measurable physiologically, as experiment one had shown, but may nevertheless have an important message, more closely related to mood states. Mood was initially differentiated from emotions with respect to physiological expression, thus explaining the lack of physiological arousal. A negative mood state thus seems to suggest a subjectively perceived stress experience rather than an objectively experienced one.

This seems of great importance with respect to qualitative research in psychology. The historical emphasis on quantitative data collection may have been and still be justified in many instances, but it seems in the interest of a comprehensive understanding of psychological phenomena to incorporate qualitative data as well.

So, if the emotional atmosphere of a place can be measured and it can be confirmed that paintings can improve the emotional atmosphere and if this in turn influences people`s mood positively, then it seems the improvement of hospital environments through the exphibition of art would be worth the effort.

Finally, it has to be noted that the results of the University research have been obtained under very artificial conditions controlling for many, but also not all extraneous variables. Life and emotional experiences, however, are clearly not confined to the influences of one independent variable at a time. It has to be kept in mind that even if it could be confirmed by future research that the visual art benefits health and healing, the artworks on the wall could never exclusively account for any improvement.

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EPILOGUE

The Street Window

Whoever leads a solitary life and yet now and then wants to attach himself somewhere, whoever, according to changes in the time of day, the weather, the state of his business, and the like, suddenly wishes to see any arm at all to which he might cling - he will not be able to manage for long without a window looking on to the street. And if he is in the mood of not desiring anything and only goes to his window sill a tired man, with eyes turning from his public to heaven and back again, not wanting to look out and having thrown his head up a little, even then the horses below will draw him down into their train of wagons and tumult, and so at last into the human harmony.

Franz Kafka

Gabriel Josipovici. 1993. Franz Kafka. Collected Stories. Edited and introduced by Everyman`s Library. London: David Campbell Publishers Ltd.